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India as Seen in THE BRHATSAṂHITĀ OF VARĀHAMIHIRA

AJAY MITRA SHASTRI, M. A., Ph. D.,
Reader in Ancient Indian History and Culture,
Nagpur University.

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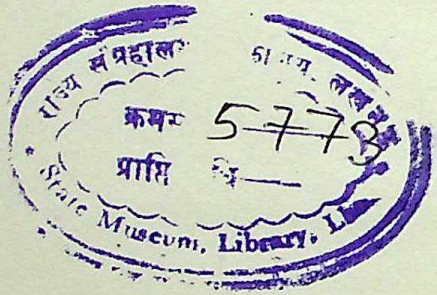

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TO

MY TEACHER

PROFESSOR DR. RAJ BALI PANDEY,

Vice-Chancellor, University of Jabalpur,

as a token of profound esteem and gratitude.

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FOREWORD

I have great pleasure in writing a few lines by way of foreword to Dr. Ajay Mitra Shastri's work which formed his thesis submitted for the Ph.D. degree of the Nagpur University. It elicited unstinted praise from the examiners for its comprehensiveness and accuracy in the treatment of the subject. Dr. Shastri has added two new appendices while preparing it for publication.

Varāhamihira's *Bṛhatsaṁhitā* is a veritable mine of information for the cultural history of the period during which he flourished. Its importance for the political history of the period is no less as would appear from the mention in it of *Mahārājādhirāja* Dravyavardhana of Avanti the significance of which was first brought to notice by me. Dr. Shastri has proved that Varāhamihira's *Pañcasiddhāntikā* was written in A.D. 505. Varāhamihira, therefore, belonged to the last period of the Gupta age. His date is an important landmark in the uncertain ancient history of our country.

Though the encyclopaedic character of the *Bṛhatsaṁhitā* had for long been recognised by Indologists, no systematic attempt was made to scan it as a source of the cultural history of the Gupta period. For this, sound knowledge of Sanskrit and mastery over details of ancient Indian culture are essential. Dr. Shastri has succeeded in his herculean task because he possesses both in a remarkable degree.

Dr. Shastri has ransacked the *Bṛhatsaṁhitā* and other works of Varāhamihira and has given us on their basis a brilliant picture of the then Indian life in all its varied aspects. He has supplemented his information by means of references drawn from contemporary literature, inscriptions, coins and other archaeological material. He has spared no pains in making it comprehensive and uptodate. It is undoubtedly a valuable addition to the existing literature on the cultural history of

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ancient India and will prove to be a valuable work of reference to all students of Indology.

I am sure that this work will be highly appreciated by the scholarly world.

Nagpur
8th August, 1969.

V. V. Mirashi

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PREFACE

The present work, which substantially represents the author's thesis approved by the Nagpur University for the degree of Doctor of Philosophy in 1962, aims at a critical study of the cultural material gleaned from the *Bṛhatsaṁhitā* of Varāhamihira. The value of old texts for the reconstruction of the cultutal history of ancient India can hardly be overemphasised, and in recent years cultural studies of some works like the *Jātakas*, Pāṇini's *Aṣṭādhyāyī*, Kālidāsa's writings, Śrīharṣa's *Naiṣadhīyacarita*, Somadeva's *Yaśastilakacaṁpū* and the Jaina canonical literature have been published. But the *Bṛhatsaṁhitā*, save for a few chapters, was not studied from this point of view, possibly because an astrological treatise like this was not supposed to have a bearing on cultural history. That this supposition is far from the truth will be borne out by a cursory glance at the contents of the present work. From the point of richness of details few works can stand comparison to the *Bṛhatsaṁhitā* which is a veritable encyclopaedia of Indian life in the Gupta age.

Being his last work, the *Bṛhatsaṁhitā* is undoubtedly a product of Varāhamihira's mature mind. But his other writings, particularly the *Yogayātrā*, *Bṛhadyātrā*, *Vivāhapaṭala* and the *Samāsasaṁhitā* stanzas cited by Utpala, also furnish a wealth of cultural material. I have utilised the evidence of all these works for corroborating and supplementing the data of the *Bṛhatsaṁhitā*.

Varāhamihira lived towards the close of the Gupta period, and a student of his works must, therefore, take into account the rich evidence afforded by contemporary inscriptions, coins and other archaeological data which often go to confirm and supplement Varāhamihira's statements. I have pressed these sources into service as best as I could. Wherever necessary, contemporary literature has also been consulted. In certain matters Varāhamihira appears to draw upon earlier texts, while in

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some cases he seems to have influenced many a later writer to an appreciable extent. In such cases it has been my endeavour to trace the beginnings and narrate later developments only in so far as they are relevant to the subject-matter of the present work.

The present dissertation is divided into eight convenient chapters. The opening chapter deals with Varāhamihira's date, life and works. Scholars like Drs. Bhau Daji, H. Kern, G. Thibaut and others have studied some aspects of this topic. But since they wrote much fresh material has come to light and even the data then available to them needed reinterpretation. The present writer has tried to take stock of the entire evidence, to discuss the views of these scholars in a dispassionate manner and to arrive at balanced conclusions. After critically reviewing the relevant material it is suggested that Śaka 427 (505 A. D.) is the year of the composition of the *Pañcasiddhāntikā*, and not the year of Varāhamihira's birth, or of the composition of the *Romakasiddhānta* or of its commentary as is generally held. The cultural evidence of his works is, for the first time, brought to bear upon the general question of his age. Many unpublished works attributed to Varāhamihira have also been listed from catalogues of manuscripts. The topography of the *Bṛhatsaṁhitā* is discussed in Ch. II, while the next three chapters take stock of the religious, social and economic conditions as reflected in our text. A perusal of this portion will show that the oldest datable systematic treatment of many a topic is to be found in the *Bṛhatsaṁhitā*. A brief account of the then astrological beliefs will be found in Ch. VI. The following chapter deals with architecture, both secular and religious, sculpture, iconometry, music and painting. Varāhamihira's references to older authors and works are discussed in the concluding chapter. The four appendices, which follow it, deal with polity and government, twelve-year and sixty-year cycles of Jupiter, rainfall and the art of tracing subsoil water-springs. Appendix III on rainfall, which is mainly, though not entirely, based on the *Bṛhatsaṁhitā*, was originally published as a paper in the *Journal of Oriental Institute*, Baroda, and is reproduced here with the kind permission of the editor of that journal.

It would follow from the foregoing that the present work

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is the first systematic attempt to study on scientific lines the cultural data from Varāhamihira's works, specially the *Bṛhat-saṁhitā*, as viewed by a historian.

I am conscious of the gratitude I owe to the *pūrva-sūris* who have tried to elucidate problems connected with Varāhamihira and his works. In this connection I must mention first Utpala, the only scholiast whose gloss on the *Bṛhatsaṁhitā* has come down to us. His erudite commentary is of immense help in understanding Varāhamihira. He is to Varāhamihira what Mallinātha is to Kālidāsa. Reference must also be made to Dr. H. Kern, Mahāmahopādhyāya Sudhākara Dvivedī and Dr. G. Thibaut who are responsible for pioneering researches in Varāhamihira's writings. Drs. J. F. Fleet, J. N. Banerjea and P. V. Kane have also dealt with some problems relating to Varāhamihira. To them the author is grateful.

I am aware of the valuable help I received from different quarters without which it would not have been possible to present the work in this form. Words fail to express adequately my gratitude to Mahāmahopādhyāya Dr. V. V. Mirashi, formerly Professor and Head of the Department of Ancient Indian History and Culture, Nagpur University, under whom I was privileged to work. He took keen interest in the progress of the work and made several useful suggestions. He has further obliged me by blessing the book with his foreword. My teacher Dr. Raj Bali Pandey, Vice-Chancellor, University of Jabalpur, initiated me into the field of Indological studies and has throughout been a source of inspiration to me. In fact, the work was originally started under him at the Banaras Hindu University but had to be temporarily given up owing to my coming over to Nagpur. I have, therefore, dedicated him the present work as an humble token of my profound gratitude and respect for him. I am also highly grateful to Professor K. D. Bajpai, Tagore Professor and Head of the Department of Ancient Indian History, Culture and Archaeology, University of Saugar, and Shri N. Lakshminarayana Rao, formerly Government Epigraphist for India, for kindly perusing the typescript and offering some useful suggestions. On this occasion I gratefully remember the late Dr. P. K. Gode and Prof. H. D. Velankar who took keen interest in the progress of my work and helped

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me in various ways. I am also thankful to Dr. Vasantakumar R. Pandit of Bombay for his kind permission to utilise his unpublished editions of the *Bṛhadyātrā*, *Yogayātrā* and *Vivāha-paṭala*. The illustrations given at the end of the book have been prepared by my former students Dr. Y. Gopala Reddy and Shri P. R. K. Prasad, M. A.; they deserve my sincere thanks.

No amount of words would suffice to express my indebtedness to my wife Mrs. Yogeshwari Shastri, M.A., for her constant encouragement and help.

I also take this opportunity to record my sincere thanks to the publishers, Messrs. Motilal Banarsidass, for undertaking the publication of the work and showing me full consideration all through the printing of the book.

It is regretted that notwithstanding utmost care taken in the correction of the proofs misprints and other errors have crept into the book. For these, I crave the indulgence of the readers.

Nagpur University
15th August, 1969.

Ajay Mitra Shastri

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ABBREVIATIONS

ABORI	:	Annals of the Bhandarkar Oriental Research Institute, Poona.
AR	:	Asiatic Researches.
ASI, AR	:	Archaeological Survey of India, Annual Report.
ASSI	:	Archaeological Survey of South India.
ASWI	:	Archaeological Survey of Western India.
BDCRI	:	Bulletin of the Deccan College Research Institute.
BJ	:	Bṛhajjātaka.
BS	:	Bṛhatsaṁhitā.
BV	:	Bhāratīya Vidyā, Bharatiya Vidya Bhavan, Bombay.
BY	:	Bṛhadyātrā.
CAGI	:	Cunningham's Geography of Ancient India.
CASR	:	Cunningham's Archaeological Survey Reports.
CCGD	:	J. Allan's Catalogue of the Coins of the Gupta Dynasty and of Śaśāṅka.
CII	:	Corpus Inscriptionum Indicarum.
CMSML*	:	Catalogue of Manuscripts in Tanjore Maharaja Serfoji's Sarasvati Mahal Library, Tanjore, by P. P. S. Sastri.
CSMDCBUL*	:	Catalogue of Sanskrit Manuscripts in Desai Collection of the Bombay University Library.
CSMGOML*	:	Catalogue of Sanskrit Manuscripts in Government Oriental Manuscripts Library, Madras.
CSMGOMLM*	:	Catalogue of Sanskrit Manuscripts in Government Oriental Manuscripts Library, Mysore, 1922-28.
CSMM*	:	Catalogue of Sanskrit Manuscripts in Mithila by H. P. Sastri.

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CSPMBBRAS*	:	Catalogue of Sanskrit and Prakrit Manuscripts in the Library of the Bombay Branch of the Royal Asiatic Society.
DHI	:	Development of Hindu Iconography by J. N. Banerjea.
EI	:	Epigraphia Indica.
HDS	:	P. V. Kane's History of Dharmaśāstra.
HIA	:	S.B. Dikshit's History of Indian Astronomy (Bhāratīya Jyotiṣa).
IA	:	Indian Antiquary.
IC	:	Indian Culture.
IHQ	:	Indian Historical Quarterly.
JA	:	Journal Asiatique.
JAHRS	:	Journal of the Andhra Historical Research Society.
JASB	:	Journal of the Asiatic Society of Bengal.
JBBRAS	:	Journal of the Bombay Branch of the Royal Asiatic Society.
JBORS	:	Journal of the Bihar and Orissa Research Society.
JDL	:	Journal of the Department of Letters, Calcutta University.
JIH	:	Journal of Indian History.
JISOA	:	Journal of the Indian Society of Oriental Art.
JNSI	:	Journal of the Numismatic Society of India.
JOI	:	Journal of the Oriental Institute, Baroda.
JOR	:	Journal of Oriental Research, Madras.
JRAS	:	Journal of the Royal Asiatic Society of Great Britain and Ireland.
JRASB	:	Journal of the Royal Asiatic Society of Bengal.
JUB	:	Journal of the University of Bombay.
JUPHS	:	Journal of the United Provinces Historical Society.
LJ	:	Laghujātaka.
MASI	:	Memoirs of Archaeological Survey of India.
NPP	:	Nagari Prachāriṇī Patrikā.

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NSM*	:	Notices of Sanskrit Manuscripts.
PHAI	:	Political History of Ancient India by H. C. Raychaudhuri.
PO	:	Poona Orientalist.
SI	:	Select Inscriptions by D. C. Sircar.
SS	:	Samāsasaṁhitā.
TCSM*	:	Triennial Catalogue of Sanskrit Manuscripts in the Government Oriental Manuscripts Library, Madras.
TY	:	Ṭikaṇikayātrā.
VIJ	:	Vishveshvaranand Indological Journal.
VP	:	Vivāhapaṭala.
YY	:	Yogayātrā.

———

REFERENCES

Unspecified figures refer to *BS*, Roman figure to the chapter, and the English figure to the serial number of verses Thus I. 1 refers to the first verse of the first chapter of *BS*.

* Used in Ch. I only.

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LIST OF ILLUSTRATIONS

Fig. 1. Indra with an indistinct object, probably *vajra*, in the right hand, horizontally placed third eye on the forehead and the elephant mount, Paharpur. After K. N. Dikshit, *Excavations at Paharpur*, *MASI*, No. 55, pl. XXVII (*d*).

„ 2. Varuṇa with *pāśa* passing round his head, Paharpur. After *ibid.*, Pl. XXXII (*a*).

„ 3. Four-armed Viṣṇu holding conchshell, wheel, and mace, the remaining hand being in the *śāntida-mudrā*, Mathura. Courtesy Mathura Museum.

„ 4. Ardhanārīśvara bust, Mathura. Courtesy Mathura Museum.

„ 5. Yama seated on a buffalo, Brahmeśvara Temple. Bhuvaneśvara. Courtesy Archaeological Survey of India.

„ 6. *Naravāhana* Kubera, Bharhut. After *CII*, II (ii). Pl. XXIX, BI, A 58.

„ 7. Baladeva holding *musala* and *hala* and wearing *kuṇḍala* in the left ear only, Mathura Art. Courtesy Provincial Museum, Lucknow.

„ 8. Four-armed Baladeva holding *hala*, *gadā* and a drinking vessel and wearing *kuṇḍalas* of different designs, Paharpur. After K. N. Dikshit, *Excavations at Paharpur*, *MASI*, No. 55, Pl. XXII (*b*).

„ 9. Skanda holding *śakti* in the left hand and seated on a peacock. Courtesy Bharat Kala Bhavan, Banaras Hindu University.

„ 10. Ekānaṁśā panel, Mathura Art. Courtesy Provincial Museum, Lucknow.

„ 10A. Ekānaṁśā panel, Ellora. Courtesy Archaeological Survey of India.

„ 11. Male figure wearing *ekāvalī* and *hāraphalaka*, Ajanta Cave II. After G. Yazdani, *Ajanta*, II, Pl. XIX.

„ 12. *Nakṣatramālā* (of gold), Taxila. After, *ASI*, *AR*, 1924-25, Pl. XI.2.

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„ 13. Bodhisattva Padmapāṇi wearing *yaṣṭi* Ajanta Cave I. After G. Yazdani, *Ajanta*, I, Pl. XXIV.

„ 14. Royal umbrella with pearl-decoration, Ajanta Cave XVII. After *ibid.*, IV, Pl. XVII.

„ 14A. Royal umbrella with pearl-strings hanging from it, Ajanta Cave I. After *ibid.*, I, Pl. XVIII.

„ 15. Square umbrella, Ajanta Cave I. After *ibid.*, I, Pl. XXIB.

„ 16. Lady at toilet holding a circular mirror, Ajanta Cave XVII. After *ibid.*, IV, Pl. LXIVB.

„ 17. Seat with *kumbha* legs, Amaravati. After C. Sivaramamurti, *Amaravati Sculptures in the Madras Government Museum*, Pl. XII(2).

„ 18. Parts of the leg of a couch, Kuṣāṇa Art. After *Rāṣṭrakavi Mathilīśaraṇa Gupta Abhinandana Grantha*, p. 898, Fig. 39.

„ 19. Sarvatobhadra house.
„ 20. Nandyāvarta house.
„ 21. Vardhamāna house.
„ 22. Svastika house
„ 23. Rucaka house.
„ 24. *Ekāśītipada* plan (square).*
„ 25. *Ekāśītipada* plan (circular).*
„ 26. *Ekāśītipada* plan (triangular).*
„ 27. *Catuḥṣaṣṭipada* plan (square).*
„ 28. *Catuḥṣaṣṭipada* plan (circular).*

Adapted from Bhaṭṭotpala's commentary on the *Bṛhatsaṁhitā*

„ 29. Lotus-petal-shaped sword, Amaravati. After C. Sivaramamurti, *Amaravati Sculptures in the Madras Government Museum*, Pl. X(2).

„ 30. Bamboo-leaf-shaped sword, Amaravati. After *ibid.*, Pl. X (1).

„ 31. Sword with pointed tip (*śūlāgra*), Nagarjunakonda. After *BDCRI*, II, p. 299, fig. 27.

„ 32. Sword with rounded tip (*maṇḍalāgra*), Amaravati. After C. Sivaramamurti, *Amaravati Sculptures in the Madras Government Museum*, Pl. X (6).

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**Key to Figures* 24-28.

1. Śikhin, 2. Parjanya, 3. Jayanta, 4. Indra, 5. Sūrya, 6. Satya, 7. Bhṛśa, 8. Antarikṣa, 9. Anila, 10. Pūṣan, 11. Vitatha, 12. Bṛhatkṣata, 13. Yama, 14. Gandharva, 15. Bhṛṅgarāja, 16. Mṛga, 17. Pitṛ, 18. Dauvārika, 19. Sugrīva, 20. Kusumadanta, 21. Varuṇa, 22. Asura, 23. Śoṣa, 24. Pāpayakṣmā, 25. Roga, 26. Ahi, 27. Mukhya, 28. Bhallāṭa, 29. Soma, 30. Bhujaga, 31. Aditi, 32. Diti, 33. Brahmā, 34. Aryaman, 35. Savitṛ, 36. Vivasvān,.37. Indra, 38. Mitra, 39. Rājayakṣmā, 40. Pṛthvīdhara, 41. Āpavatsa, 42. Āpaḥ, 43. Sāvitra, 44. Jaya, 45. Rudra.

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CHAPTER I

VARĀHAMIHIRA : HIS AGE, LIFE AND WORKS

Varāhamihira holds a unique position in the history of astronomical and astrological literature of India. Many authors are known to have composed works on one or the other branch of Jyotiṣa, but Varāhamihira excelled them all by giving vent to his versatile genius in all its three branches alike. He is among the writers on Jyotiṣa what Pāṇini is among *vaiyākaraṇas*, Manu among *dharmaśāstra-kāras*, Kauṭilya among writers on political science and Bharata among dramaturgists. His masterly treatment of the subject and well-deserved eminence and reputation cast all older texts, with very few exceptions, into oblivion,[1] and in later times he was gratefully remembered by the posterity.[2] His well-known scholiast Utpala describes him as the very incarnation of the Sun who descended to this world in the Kali age in order to rescue Jyotiṣa-śāstra from wholesale destruction[3]

1. Cf. Keith, *A History of Sanskrit Literature*, p. 528.

2. Cf. श्रीमद्वराहमिहिरार्यभटाद्यभीष्ट-शब्दार्थ-रीति-विरहश्शुभदोऽत्र नूनम् ।

Sadratnamālā by Śaṅkaravarman, composed at the instance of Rāmavarman, brother of Udayavarman, king of Kerala—*TCSM*, V, Pt. 1, Sanskrit-C, p. 6519, No. 4448;

वराहरचिताध्याने ज्योतिषामयने घने ।
यथा यथार्थबुद्धिस्स्यात् तथानुज्ञापय प्रभो ॥

Haladhara-Saṁhitā of Haladharamiśra (beginning), *TCSM*, IV-A, p. 4547, No. 3068.

3. यच्छास्त्रं सविता चकार विपुलैः स्कन्धैस्त्रिभिर्ज्यौतिषं
तस्योच्छित्तिभयात् पुनः कलियुगे संसृत्य यो भूतलम् ।
भूयः स्वल्पतरं वराहमिहिरव्याजेन सर्वं व्यधा-
दित्थं यं प्रवदन्ति मोक्षकुशलास्तस्मै नमो भास्वते ॥

BS, I, p. 1, Verse 2.

This seems to have been a floating verse which is ascribed by some writers to the *Rājamārtaṇḍa* of Bhoja, cf. *Jyotiṣa-tattva-kaumudī* of one Śrīnivāsamiśrātmaja (beginning), *TCSM*, VI, Pt. 1, p. 7208, No., 5241; *Jyotiścandrodaya* of Vatsa family, *Ibid*, IV, Pt. I, Sanskrit-A, p. 4746, No. 3199. The *Rājamārtaṇḍa-saṅgraha* of Bhoja (Śaka 964), wrongly ascribed

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and compares his works to a vast ocean.[1] The belief in Varāhamihira being an incarnation of the Sun is echoed by the authors of the *Suprakāśa*[2], the *Bījapallava*[3] and of the *Daśādhyāyī* gloss on the *Bṛhaj-jātaka*.[4] Brahmagupta, who is well-known for his severe censure of earlier writers, does not level any serious accusation against Varāhamihira.[5] Kalyāṇavarman (cir. A. D. 650-725),[6] the author of the *Sārāvalī*, drew, among others, upon

to Varāhamihira, actually begins with this stanza. Cf. H. P. Sastri, *CSMM*, III, p. 255, No. 305.

1. वराहमिहिरोदधौ सुबहुभेदतोयाकुले
ग्रहर्क्षगणयादसि प्रचुरयोगरत्नोज्ज्वले ।
भ्रमन्ति परितो यतो लघुधियोऽर्थलुब्धाः. . .

BS, I, p. 1, verse 3. This and the above verse are repeated in the introductory portion of his scholia on *BJ*. and *YY*.

2. पूर्वं पूर्वमुनिं (निः) ससर्ज विविधं यज्ज्योतिषां विश्वसृट्
सारोद्धारपरौ ततोऽप्यभिमतां दैत्येन्द्रयोर्मन्त्रिणौ ।
तस्माद् गर्ग-पराशरादिमुनिभिः प्रोक्तं तदल्पं पुनः
संक्षिप्तं कृतवान् वराहमिहिरोऽर्कांशावतारोऽखिलम ॥

Quoted in the *Jyotiścandrodaya*, *TCSM*, IV, Pt. 1, Sanskrit— A, p. 4746, No. 3199.

3. मिहिरं वराहमिहिरं वन्दे सन्देहवेदिनं जगताम् ।
ज्योतिश्चक्रविभावनहेतुं जगदेकचक्षुरक्षुद्रम् ॥

Bījapallava (Ms. dated Śaka 1523=A. D. 1601) by Kṛṣṇa, *CMSML*, p. 7672, No. 11523.

4. ज्योतिश्शास्त्रमिदं विधाय विपुलं त्रिस्कन्धभिन्नं पुरा
लोकानां मतिमान्द्यतः कलियुगे तत्पातभीत्या पुनः ।
स्वल्पं तत् सकलं ततो रचितवानादित्यदासात्मजः ।
भूत्वा यो मिहिरो वराहमिहिरं नाम्ना नमस्कुर्महे ॥

CSMGOML, p. 9481, No. 14064.

5. S.B. Dikshit, *HIA*, p. 216 and note.

6. Kalyāṇavarman is variously assigned by scholars to Śaka 500 (Sudhakara Dvivedi, *Gaṇaka-taraṅgiṇī*, p. 16), 821 (*HIA*, p. 486), A. D. 650 (S. L. Katre, Kalyāṇavarman's Sārāvali, Fresh Light on its Date, *IC*, XI, pp. 1-9) and A. D. 750 (D. C. Bhattacharya, Dates of Bhaṭṭotpala and Kalyāṇavarman, *Ibid.*, XII, p. 82). The present writer has shown elsewhere that the date of Kalyāṇavarman must lie somewhere between A. D. 650 and 725. This view is based on several considerations, viz. Kalyāṇavarman's indebtedness to Varāhamihira (*Sārāvali*, I.2; XXXIX.9) and Brahmagupta (*Ibid.*, XI.2) and Bhaṭṭotapala's hand in the completion of the *Sārāvali*. Vide my paper, The Date of Kalyāṇavarman : Author of Sārāvali, *JIH*, XLII, pp. 915-920).

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Varāhamihira's works on horoscopy[1], and the celebrated astronomer Bhāskarācārya also admits of having benefited from his treatises.[2] Śatānanda (A. D. 1098) based his *Bhāsvatīkaraṇa* on the *Pañca-siddhāntikā* of Varāhamihira.[3] Śrīpati, Śrīnivāsamiśrātmaja, Śrīnivāsācārya and Nārāyaṇadāsa, the authors of the *Jyautiṣa-ratnamālā*[4], *Jyotiṣa-tattva-kaumudī*[5], *Śuddhi-dīpikā*[6] and

1. विस्तरकृतानि मुनिभिः परिहृत्य पुरातनानि शास्त्राणि ।
होरातन्त्रं रचितं वराहमिहिरेण संक्षेपात् ॥

Sārāvalī, I. 2

2. कृती जयति जिष्णुजो गणकचक्रचूडामणि–
र्जयन्ति ललितोक्तयः प्रथिततन्त्रसद्युक्तयः ।
वराहमिहिरादयः समवलोक्य येषां कृतीः
कृती भवति मादृशोऽप्यतनुतन्त्रबन्धेऽल्पधीः ॥

Siddhānta-śiromaṇi, I.2.

3. Śatānanda tells us that he wrote the *Bhāsvatī-karaṇa* in Śaka 1021 (A. D. 1098) in accordance with the teachings of Mihira contained in his *Sūrya-siddhānta* :—

नत्वा मुरारेश्चरणारविन्दं श्रीमान् शतानन्द इति प्रसिद्धः ।
तां भास्वतीं शिष्यहितार्थमाह शाके विहीने शशिपक्षरवैकैः ॥
अथ प्रवक्ष्ये मिहिरोपदेशात् तत्सूर्यसिद्धान्तसमं समासात् ।

Bhāsvatī-kāraṇa, I.1,4.

Taking Mihira to stand for Varāhamihira and regarding the *Sūrya-siddhānta* as his work, Bentley concluded that Varāhamihira flourished in the eleventh century A. D. (*AR.*, VI, pp. 559, 572-4). The baselessness of Bentley's views is now beyond doubt. Cf. H. T. Colebrooke, *Miscellaneous Essays*, II, pp. 390, 482-3; Dikshit, p. 243. That Śatānanda based his work on the Sūrya-siddhānta section of the *Pañca-siddhāntikā* is rendered very probable by the colophon of a Ms. of the *Bhāsvatī-karaṇa* in the collection of the Bombay Branch of the Royal Asiatic Society (*CSPMBBRAS*, I, p. 84, No. 252):—

इति श्रीशतानन्द-विरचिते पंचसिद्धान्तसम्मते सौर्यो भास्वत्यां परिलेखाधिकारो नाम अष्टमोऽध्यायः ।

4. विलोक्य गर्गादिमुनिप्रणीतं वराहलल्लादिकृतं च शास्त्रम् ।
दैवज्ञकण्ठाभरणार्थमेषा विरच्यते ज्यौतिषरत्नमाला ॥

TCSM, II, Pt. 1, Sanskrit—A, p. 2609.

5. महामुनीन्द्रैर्बहुतत्त्वदर्शिभिर्वराहमुख्यै रचिताननेकधा ।
प्रबन्धसारान् समवेक्ष्य सन्ततं करोम्यहं ज्योतिषतत्त्वकौमुदीम् ॥

TCSM, VI, Pt. 1, p. 7208, No. 5241.

6. अस्तङ्गतवति मिहिरेऽतिमलिनदोषाकुले च गोविभवे ।
उद्वाहादिषु शुद्धिग्रहणार्थं दीपिका क्रियते ॥

TCSM, IV, Pt. 1, Sanskrit—A, p. 4357.

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the *Praśna-viplava* or *Vaiṣṇava-śāstra*[1] respectively, also acknowledge their indebtedness to his writings. Gaṇeśa Daivajña observes that when astronomical and astrological rules framed by Parāśara, Āryabhaṭa and others became inaccurate, they were amended, among others, by Varāhamihira.[2] Alberuni, who visited India and wrote his account in the eleventh century A.D., is all admiration for him and speaks of him as an excellent astronomer[3] who clearly spoke out the truth. He regrets that others did not follow Varāhamihira's example and passes strictures on Brahamagupta's lack of sincerity and his support to imposture.[4]

I. *The Date*

As in the case of many celebrated Sanskrit writers, considerable obscurity looms large about the age and personal life of Varāhamihira. The data bearing on his date are scanty and dubious in the extreme and consequently scholars have arrived at widely divergent conclusions. The following pages aim at a searching examination of the internal and external evidence with a view to finding out a working hypothesis regarding his date.

A. *External Evidence*

The Jyotirvid-ābharaṇa : The *Jyotirvid-ābharaṇa*, which claims to proceed from the pen of Kālidāsa, the celebrated writer of the three poems, viz., the *Raghuvaṁśa*, the *Kumāra-sambhava* and

1. श्रीब्रह्मदासनयजातनयः सुविद्वान् श्रीमानगस्त्यकुलजो यदुनाथभक्तः ।
वाराहताजिकमुकुन्दमतं समीक्ष्य नारायणः परमशास्त्रमिदं चकार ॥
CSMGOML, p. 9421, No. 13976.

2. Colebrooke, *Miscellaneous Essays*, II, p. 476.

3. E. Sachau, *Alberuni's India* (hereafter referred to as Alberuni), I, p. 366; II, p. 277.

4. *Ibid*, pp. 110-12. Alberuni had so great admiration for Varāhamihira that even when he found some wrong notion in his works he supposed some esoteric meaning concealed behind it which he was unable to follow. *Ibid*, p. 117.

In later times Varāhamihira was looked upon as an ideal of astronomical and astrological scholarship. Cf. Sarkha Plates of Kalacuri Ratnadeva, dated K. 888, v. 18 (*CII*, IV, p. 227) where a certain Padmanābha is compared to Varāhamihira : यः सिद्धान्तद्वयं वेत्ति होरासागरपारगः । संहिताशास्त्रतत्त्वज्ञो वराहमिहिरोपमः ॥ For a similar comparison vide *EI*, VI, p. 206, v. 21. Varāhamihira is also mentioned in the *Jaiminbhārata*, I.V. 8. Vide Winternitz, *History of Indian Literature*, Vol. I, p. 586, fn. 1.

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the *Meghadūta*[1], and to have been composed in the year 3068 (expired) of the Kali age (=the year 24 of the Vikrama era or B. C. 33)[2], seeks to rank Varāhamihira as one of the nine gems of the court of Vikramāditya who founded an era in 57 B.C.[3]

Another verse in the *Kutūhala-mañjarī* tells us that Varāhamihira was born in the year 3042 of the Yudhiṣṭhira era[4], that is, about three years before the beginning of the Vikrama era.

The *Jyotirvid-ābharaṇa* is evidently a very late forgery and the tradition recorded therein unreliable. Its claim to such an early date is belied by the internal evidence. Though claiming to be a contemporary of Varāhamihira, its author admits that he follows the views of Varāhamihira and others.[5] It indicates that there must have been considerable interval of time between the two so that the author of the *Jyotirvid-ābharaṇa* could cite Varāhamihira's authority. Satya, Śrutasena, Bādarāyaṇa, Maṇittha and Kumārasiṁha are said to be Varāhamihira's contemporaries.[6] But Varāhamihira mentions Satya[7], Bādarāyaṇa[8] and Maṇittha[9] as old authorities showing that they must have preceded him by considerable time. The authority of Siṁhācārya, probably the same as Kumārasiṁha of the *Jyotirvid-ābharaṇa*, is cited in *PS*, XV. 19. According to Bhāvaratna, the commentator of the *Jyotirvid-ābharaṇa*, Śrutasena is the same as Sidhhasena whose opinion is quoted in *BJ*, VII. 7. Jiṣṇu, the father of Brahmagupta (Śaka 550), is also made an astrologer of Vikrama's court.[10] It also mentions in a prophetic

1. *Jyotirvid-ābharaṇa*, XXII, 19-20.
2. *Ibid*, XXII. 21.
3. धन्वन्तरिः क्षपणकामरसिंह–शङ्कु-वेतालभट्ट-घटखर्पर-कालिदासाः ।
ख्यातो वराहमिहिरो नृपतेः सभायां रत्नानि वै वररुचिर्नव विक्रमस्य ॥
Ibid, XXII, 10. Also cf. XXII. 9, 19.
4. स्वस्ति श्रीनृपसूर्यसूनुजशके याते द्विवेदाम्बरत्रै ३०४२
मानाब्दमिते त्वनेहसि जये वर्षे वसन्तादिके ।
चैत्रे श्वेतदले शुभे वसुतिथावादित्यदासादभूद्
वेदाङ्गे निपुणो वराहमिहिरो विप्रो रवेराशिभिः ॥
5. *Jyotirvid-ābharaṇa*, I. 2.
6. *Ibid*,. XXII. 9.
7. BJ, VII. 3, 10, 13; XX. 10; XXI.3; *BY*, VII.1; *VP*, 53.
8. XXXIX. 1.
9. *BY*, X. 21; *BJ*, VII. 1.
10. *Jyotirvid-ābharaṇa*, XXII.8.

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manner the Śālivāhana-Śaka which was to start 135 years after Vikrama.[1] The method of calculating *ayanāṁśa* as given in the *Jyotirvid-ābharaṇa* (I.18) is also indicative of late origin. The mention of the *krānti-sāmya* of the sun and the moon as occurring after twenty *ghaṭīs* of the *Aindra-yoga* (IV. 30) led Sudhakara Dvivedi[2] and S.B. Dikshit[3] to opine that it was composed about Śaka 1164 or A.D. 1242-43. Keith brings down its date to the sixteenth century A. D.[4], while Kern is inclined to assign the work to as late a date as the eighteenth century.[5] It is pertinent to note in this context that the only known commentary on this work is by a Jain monk, Bhāvaratna, who flourished in the eighteenth century.[6] As for the *Kutūhala-mañjarī* verse, Dikshit has pointed out that its year cannot be reconciled by any system of calculation.[7]

An attempt has recently been made by S.K. Dikshit to establish the authenticity of the *Jyotirvid-ābharaṇa*.[8] As the *kṣayamāsa* (the lapse of a month), which, the *Jyotirvid-ābharaṇa* (IV.53) says in a prophetic manner, would occur in the 103rd year of the Vikrama era, did occur in A. D. 507,[9] he equates Kali 3045, the epoch of the Vikrama era, to A. D. 405,[10] the beginning of his so-called Sāhasāṅka-Vikrama era started by the Gupta emperor Candragupta II Sāhasāṅka alias Vikramāditya to commemorate complete annihilation of the Śakas of Ujjayinī.[11] Thus, Kali 3068, the date of the composition of the *Jyotirvid-ābharaṇa*, would, according to Dikshit, correspond to A. D. 428-29.[12] "The merit of Dikshit's interpretations" is appreciated by Dr. U.P. Shah.[13] The futility of this view is

1. *Jyotīrvid-ābharaṇa*, X. 110-12.
2. *Gaṇaka-taraṅgiṇī*, pp. 45-6.
3. *HIA*, p. 476. Also cf. *Vikrama Volume*, p. 88, fn. 1.
4. Keith, *A History of Sanskrit Literature*, p. 534.
5. *BS*, Introduction, pp. 12-4.
6. The commentary was composed in V.S. 1768. Published by Nirnaya Sagar Press, Bombay, 1908.
7. *HIA*, pp. 212-13, fn.
8. S. K. Dikshit, Candragupta II, Sāhasāṅka alias Vikramāditya and the Nine Jewels, *IC*, VI (1939-40), pp. 191-210, 376-92.
9. *Ibid*, p. 198.
10. *Ibid*, p. 199.
11. *Ibid*, pp. 197-8.
12. *Ibid*, p. 199.
13. U. P. Shah, Vikramāditya-Saga-1, *JOI*, IV, No, 1 (September 1954), pp. 69-84.

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amply demonstrated by K.M.K. Sarma[1] who points out that the equation of Kali 3045 with A. D. 405 goes against all traditions and that an interval of 135 years between the Vikrama and Śaka eras is accepted by all including the author of the *Jyotirvid-ābharaṇa* itself showing that the latter refers to the era of B.C. 57 and not that of A. D. 405. Moreover, had he been a contemporary of Sāhasāṅka Candragupta II, he would have not maintained reticence about the exploits of and the era commenced by his patron, while he is so very eloquent about the traditional Vikramāditya.

B. *Internal Evidence*

(i) *Śaka* 427—*The Epoch of the Pañca-siddhāntikā.*

We may now proceed to discuss the internal evidence of Varāhamihira's own works. The *Pañca-siddhāntikā* (I. 8-10)[2] gives rules for finding out *ahargaṇa* (the sum total of civil days

1. The Jyotirvid-ābharaṇa and the Nine Jewels, *PO*, V (1940-41), pp. 205-209.

2. सप्ताश्विवेदसंख्यं शककालमपास्य चैत्रशुक्लादौ ।
अर्धास्तमिते भानौ यवनपुरे सोमदिवसाद्ये ॥
मासीकृते समासे द्विष्ठे सप्ताहतेऽष्टयमपक्षैः ।
लब्धैर्युतोऽधिमासैस्त्रिंशघ्नस्तिथियुतो द्विष्ठः ॥
रुद्रघ्नः समनुशरो लब्धोनो गुणखसप्तभिर्ध्रुगणः ।
रोमकसिद्धान्तोऽयं नातिचिरे पौलिशेऽप्येवम् ॥

PS, I. 8-10

S.K. Dikshit (*IC*, VI (1939-40), pp. 171-210, 376-392) has recently suggested that *veda* in the above verse has the numerical value of 3 (and not 4 as generally believed) and that the compound *sapt-āśvivedasaṅkhyam* should be taken to mean 327 (and not 427) Śaka=A. D. 405. Varāhamihira, thus, flourished in A. D. 405 and was a contemporary of Candragupta II. He takes *dvi-ved-āmbara-trai*, the date of Varāhamihira's birth according to the *Kutūhala-mañjarī*, to denote 3032 of the Yudhiṣṭhira era, that is, 13 years before the beginning of the so-called Sāhasāṅka-Vikrama era of A. D. 405, i. e. 405-13=A. D. 392 (and not B. C. 70). Further, he thinks that the statement of Āmarāja, the commentator of Brahmagupta's *Khaṇḍakhādyaka*, viz., *nav-ādhika-pañcaśata-saṅkhya-śāke Varāhamihir-ācāryo divaṁ gataḥ*, refers to the Mālava-Vikrama samvat of B. C. 58-57 (which is different from the Vikrama era of A. D. 405). Thus he comes to the conclusion that Varāhamihira lived from A. D. 392 to 451. Dikshit's theory falls to the ground when it is remembered that in astronomical treatises the word *veda* invariably has the numerical value of 4. Cf. *PO*. V, pp. 206-7. Varāhamihira frequently uses *veda* in this sense. Cf. *PS*, II.4, 6; IV. 11, 24, 44; IX.1; XVI. 5, 11; XVII. 3, 16, 31, 34, 43, 45, 52, 57, 74; *BJ*, XII. 1; *BS*, I, pp. 49-50.

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elapsed from an initial epoch to a given date) and directs us to deduct 427 from the number of that Śaka year for which the *ahargaṇa* is wanted, at the beginning of the bright half of Caitra, when the sun has half set in Yavanapura, at the beginning of Monday, indicating that the epoch of the *Pañcasiddhāntikā* is calculated from Śaka 427 Caitra *śuklā pratipadā*.

Śaka-kāla : There is a difference of opinion among scholars as to what this *Śaka-kāla* is. Elsewhere, Varāhamihira calls it the era of the Śaka King (*Śakendra-kāla*, VIII. 20; *Śaka-bhūpa-kāla*, VIII.21) which Utpala confounds with the Vikrama era (*Śakā nāma mlecchajātayo rājānas=te yasmin kāle Vikramādityena vyāpāditāḥ sa kālo loke Śaka iti prasiddhaḥ, tasmāc=chakendra-kàlāt Śaka-nṛpa-vadha-kālād=ārabhya*, on VIII.20). We are also told that the constellation of the Great Bear was in Maghā when Yudhiṣṭhira ruled the earth and that the addition of 2526 years to *Śaka-kāla* gives his time.[1] If, as is usual, the *Śaka-kāla* is here taken to be the era of that name commencing in A. D. 78, the date of Yudhiṣṭhira will fall in B. C. 2448. Now, this view goes against the popular notions that Kaliyuga began in B. C. 3102 and that the Bhārata war was fought out in the juncture of Dvāpara and Kali. The Aihole Inscription of Pulakeśin II equates the epoch of the Kali age with the Bhārata battle and says that 3735 years (expired) from the latter event correspond to Śaka 556.[2]

1. आसन् मघासु मुनयः शासति पृथ्वीं युधिष्ठिरे नृपतौ ।
षड्द्विकपञ्चद्वियुतः शककालस्तस्य राज्ञश्च ॥ XIII. 3.

Scholars widely differ from one another regarding the interpretation of *ṣaḍ-dvika-paṅca-dviyutaḥ* V. G. Aiyer in his *Chronology of Ancient India* (p. 75) thinks that it means 26 times 25, that is, 650 years, while C. V. Vaidya takes it to mean 2566 (*Mahābhārata, A Criticism*, p. 68). K. L. Daftari (*The Astronomical Method and its Application to the Chronology of Ancient India*, p. 77) quotes this verse in the name of Garga and, like C. V. Vaidya, takes *ṣaḍ-dvika* to mean two sixes or 66. All these interpretations are against Utpala who interprets it as meaning 2526 years. As will be shown in the sequel, this last interpretation is supported by the famous poet-historian of Kashmir—Kalhaṇa.

2. त्रिंशत्सु त्रिसहस्रेषु भारतादाहवादितः ।
सप्ताब्दशतयुक्तेषु गतेष्वब्देषु पंचसु ॥
पंचाशत्सु कलौ काले षट्सु पंचशतासु च ।
समासु समतीतासु शकानामपि भूभुजाम् ॥

EI, VI, p. 7.

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The Theory of Cyrus Era : Scholars try to overcome this discrepancy by resorting to ingenious suggestions involving the invention of unknown eras and change in well-documented readings. N. Jagannatha Rao[1], Gulshan Rai[2], Kota Venkatachalam[3] and Thiruvenkatachar[4], for instance, hold that Yudhiṣṭhira died in the twenty-sixth year of the Kali age, that the Persian emperor Cyrus the Great started a reckoning in B. C. 550, exactly 2526 years after Yudhiṣṭhira's death (B. C. 3102-26-2526=B. C. 550), to commemorate either the foundation of the great Persian empire or his incursions into the Indian borderland, that the *Śakendra-kāla* or *Śaka-bhūpa-kāla* or *Śaka-kāla* of Varāhamihira is identical with this Perisan era, and that consequently Śaka 427, if referred to this era, will give us B. C. 123 as the date of the *Pañcasidddhāntikā* (B. C. 550-427=B. C. 123). Thus, according to this view, Varāhamihira flourished in the latter half of the second century B. C.[5] But this view is entirely baseless. Firstly, there is nothing to show that Cyrus started any era; secondly, even if we admit the existence of the so-called Cyrus era, it is not intelligible why this reckoning was not followed in the founder's own empire and even by the members of his own dynasty, whereas it was accepted and so widely used by Indian astronomers; thirdly, there is no reason to identify Cyrus era with *Śaka-kāla* in complete disregard of the unanimous Indian tradition that the Śālivāhana or Śaka era commenced in A. D. 78; and lastly, it has been pointed out plausibly enough that the week-day and the *kṣepas* of the *Romaka* and the *Pauliśa*, as well as the *adhimāsas* and the *avamaśeṣas* of their rules agree with A. D. 505 only, and not with B. C. 123.[6]

The Theory of the Era of Buddha's Nirvāṇa : It has been held by

1. *The Age of the Mahābhārata War*, Bezwada, 1931.

2. The Persian Emperor Cyrus the Great and the Indian 'Śaka' Era, *Journal of the Punjab University Historical Society*, Vol. I (1932), pp. 61-73, 123-136.

3. Indian Eras, *JAHRS*, XX (1949-50), pp. 39-80; XXI (1950-52), pp. 1-40.

4. Ayanāṁśa in Indian Chronology, *JIH*, XXVIII (1950), pp. 103-110.

5. V. Thiruvenkatachar assumes that *ayanāṁśa* was zero in Varāhamihira's time, relies upon Āmarāja's statement that Varāhamihira died in Śaka 509, which he refers to the so-called era of Cyrus and comes to the conclusion that Varāhamihira lived from Śaka 427 to 509 (B. C. 123—B. C. 41).

6. T. S. Kuppanna Sastri & K. V. Sarma, the Śaka Era of Varāhamihira, *JIH*, XXXVI (1958), pp. 343-367.

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C. V. Vaidya[1] and V. G. Aiyer[2] that by *Śaka-kāla* Varāhamihira means the era of Buddha's *nirvāṇa* commencing in B. C. 543; for, it is argued, the *Bṛhatsaṁhitā* verse (XIII.3) in question is quoted from Garga who is generally believed to have lived before the Christian Era and could not, therefore, refer to the Śaka era of A. D. 78. B. Suryanarayana Rao[3] would take it to mean the Buddha Śaka of B. C. 540 and make Varāhamihira flourish in the 2nd-1st centuries B. C., This view is as untenable as the one just discussed. It is difficult to understand how Buddha's era could be called *Śaka-kāla*. The suggestion of V. G. Aiyer to change the reading *Śaka-kāla* into *Śākya-kāla* or *Śakya-kāla* with a view to correct the error of one *mātrā* in the fourth quarter of the verse, is hardly convincing. Firstly, short syllable at the end of a quarter is considered to be prosodically long; and secondly, Utpala, who is in the habit of quoting variant readings in the text current in his time, does not give any variant in this case. The assertion that this verse is of Garga is also certainly wrong. In XIII.2 Varāhamihira says that he would dilate on the movements of the seven sages following Vṛddha-Garga's opinion. Garga opined that the Great Bear remained in each *nakṣatra* for one hundred years. The wording of XIII.3 and the statement about the *Śaka-kāla* and the interval between it and Yudhiṣṭhira's time is Varāhamihira's, not Garga's. Utpala cites a verse of Garga which is in the Anuṣṭubh metre.[4]

The Date of Bhārata War—B. C. 2448 : Moreover, there is no real discrepancy between Varāhamihira's statement regarding the date of Yudhiṣṭhira and the ancient Indian notions about the date of the Bhārata war. There were at least three main epochs for the Mahābhārata war, one of them being 2526 years before Śaka or 2448 B. C.[5] Kalhaṇa in his *Rājataraṅgiṇī* (I.56)

1. *Mahābhārata: A Criticism*, pp. 68-69.
2. *Chronology of Ancient India*, p. 73.
3. *Life of Varāhamihir*, p. 6. D. N. Mukherjee (The Gupta Era, *IHQ*, VIII (1932), pp. 85 ff.) takes Varāhamihira's *Śaka-kāla* to refer to the *Śākya-* or *Buddha-kāla* of B. C. 546.
4. P. V. Kane, Varāhamihira and the Śaka Era, *JAHRS*, XXI, 41-53.
5. Cf. P. C. Sengupta, Astronomical References in the Mahābhārata and their significance, *JRASBL*, III (1933), pp. 101-119; P. C. Sengupta, Bhārata Battle Traditions, *ibid*, IV (1938), pp. 393-413; P. V. Kane, *HDS*, III, pp. 898-900.

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quotes the above verse of Varāhamihira, styles the notion that the Bhārata war was fought out at the end of Dvāpara as misleading (I.49) and says that Kurus and Pāṇḍavas lived when 653 years of the Kali age had gone.[1] This date for the Bhārata war finds some support from the data contained in the Nidhanpur copper-plate inscription of Bhāskaravarman[2], the king of Kāmarūpa and a contemporary of Harṣavardhana (1st half of 7th Century A. D.). The dynasty was founded by Naraka whose son Bhagadatta was killed in the Bhārata war. He was followed by his son Vajradatta whose descendants ruled for 3000 years before Puṣyavarman came to the throne. Now, as Bhāskaravarman was 12th in descent from Puṣyavarman, the latter may be placed towards the close of the 4th or the beginning of the 5th century A. D. The addition of 3000 years, the alleged interval between Puṣyavarman and Vajradatta, gives us about 2500 B. C. as the date of Vajradatta and of the Bhārata war.[3]

(ii) *The Date of the Pañcasiddhāntikā—A. D.* 505.

There can be thus no doubt that Varāhamihira means by *Śaka-kāla* the era commencing in A. D. 78. In that case the particulars of Śaka 427 noted above will give us 3 *nāḍīs*, 9 *vināḍīs*, after the midnight at Ujjain, Sunday-Monday, 20th-21st March, A. D. 505[4]. The *kṣepakas* according to the original *Sūryasiddhānta* (the work of this name referred to by Varāhamihira, which is no more extant, is so called to distinguish it from the modern work of that name) also are in favour of *amānta* Caitra *kṛṣṇa caturdaśī* of Śaka 428 current (427 expired) which ended on Sunday, 20th March, A.D. 505, some of the *kṣepakas* being for the noon of day, and others for the next following midnight. And the nearest *śukla pratipadā* was

1. शतेषु षट्सु सार्धेषु त्र्यधिकेषु च भूतले ।
कलेर्गतेषु वर्षाणामभूवन् कुरुपाण्डवाः ।।

Rājataraṅgiṇī, I.51.

Cf. Winternitz, *History of Indian Literature*, I, p. 523, fn. 2.

2. *EI*, XII, pp. 65 ff.

3. *HDS*, III, pp. 898-99. P. C. Sengupta (*JRASBL*, III, pp. 101-119; IV, pp. 393-413) supports Varāhamihira-Kalhaṇa tradition and places the Bhārata war in 2449 B. C. on the basis of certain statements of an astronomical nature contained in the *Mahābhārata*. This view is, however, criticised by H. C. Raychaudhuri, *PHAI*, pp. 27-29.

4. *JIH*, XXXVI (1958) p. 347.

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the *amānta* Vaiśākha *śukla pratipadā* of Śaka 428 current, which ended on Tuesday, 22nd March, A. D. 505. But it is referred to as Caitra *śukla pratipadā*, for, as pointed out by Dikshit, according to the real *pūrṇimānta* arrangement, the *pratipadā* of the bright fortnight of the *amānta* Vaiśākha in question belonged to the bright fortnight of the *pūrṇimānta* Caitra.[1] It is difficult to say to which event of Varāhamihira's life this year refers. Though the epoch of calculation should not of necessity be regarded as the date of the composition of a work,[2] in order to facilitate all astronomical calculations and to minimise inaccuracies, 'it is the interest and practice of the *karaṇa*-writers to choose for their epoch a year, as little remote as may be from the time of the composition of their treatises.' It is, therefore, quite reasonable to assume that the *Pañcasiddhāntikā* was written in A. D. 505 or within a few years of that date. A list furnished by the astronomers of Ujjayinī to Dr. Hunter and published by Colebrooke[3] assigns to Varāhamihira the date Śaka 427[4]. The list also mentions Brahmagupta, Muñjāla, Varuṇabhaṭṭa, Bhojarāja and Bhāskarācārya and assigns them the dates Śaka 550 (A. D. 628-29), 854 (A. D. 932-33), 962 (A. D. 1040-41), 964 (A. D. 1042-43) and 1072 (A. D. 1150-51) in order which are respectively the years of composition or astronomical epochs of their works,[5] viz., *Brāhmasphuṭasiddhānta*[5], *Laghumānasa*[6], commentary on Brahmagupta's *Brāhmasphuṭasiddhānta*[7], *Rājamṛgāṅka*[8] and the *Siddhāntaśiromaṇi*.[9] Bhaṭṭotpala is assigned to Śaka

1. S. B. Dikshit, The Original Sūryasiddhānta, *IA*, XIX (1890), pp. 47-51; The Romaka Siddhānta, *Ibid*, p. 137.

2. E. g. Kero Pant's *Grahasādhanakoṣṭhaka* has for its epoch Śaka 1772, but was published in Śaka 1782.

3. Colebrooke, *Algebra of the Hindus*, p. XXXIII; *Miscellaneous Essays*, II, pp. 461-63.

4. He is the second Varāhamihira of the list and is preceded by another astronomer of the same name to whom is assigned the date Śaka 122 (A. D. 200-201).

5. Brahmagupta was born in Śaka 520 (A. D. 598-99) and composed his Siddhānta at the age of 30—in Śaka 550:—

पंचाशत्संयुक्तैर्वर्षशतैः पंचभिरतीतैः ॥
ब्राह्मस्फुटसिद्धान्तः सज्जन-गणितज्ञ-गोलवित्-प्रीत्या ।
त्रिंशद्वर्षेण कृतो जिष्णु-सुत-ब्रह्मगुप्तेन ॥

6. *HIA*, p. 313.

7. *Ibid*, p. 226.

8. *Ibid*, p. 238.

9. Bhāskara was born in Śaka 1036 and composed the *Siddhāntaśiromaṇi*, when he was 36, i. e. in Śaka 1072:—

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890 which is only two years distant from the dates of his commentaries on the *Bṛhatsaṁhitā* and the *Bṛhajjātaka*. Thus Śaka 427, though it is not specified to which period of Varāhamihira's life this year belongs, may, on the ground of analolgy, be reasonably regarded as the date of the composition of the *Pañcasiddhāntikā*. This assumption becomes a fact when we find that Alberuni writing in A. D. 1030 observed that the *Pañcasiddhāntikā* was composed 526 years before his own time[1] and that Varāhamihira preceded his (Alberuni's) own time by 525[2] or about 526 years[3]. Thus the internal evidence, the tradition and Alberuni's statement are all unanimous in regarding A. D. 505 as the date of the composition of the *Pañcasiddhāntikā*.[4]

But a dissenting voice against this view is raised by such high authorities as Drs. Bhau Daji, Kern and Thibaut. Relying on the statement of Āmarāja, the commentator of Brahmagupta's *Khaṇḍakhādyaka*, that Varāhamihira died in Śaka 509, i.e. A. D. 587 (*Nav-ādhika-pañca-śata-saṅkhya-śāke Varāhamihirācāryo divaṁ gataḥ*), Dr. Bhau Daji regards A. D. 505 as too early a date for the composition of the *Pañcasiddhāntikā* and concludes his remarks with the suggestion that 'in all likelihood his birth was twenty or thirty years subsequent to this date, which would make Varāhamihira about fifty or sixty years old at the time of his death in A. D. 587[5]. But as pointed out by Dikshit, there is reason to doubt the authenticity of Āmarāja's statement : It is not certain whether the passage is in verse or prose; if versified it does not conform to the rules of metrics and if in prose it is difficult to ascertain whether it has retained its original form throughout so many centuries that have elap-

रस-गुण-पूर्ण-मही १०३६ सम-शक-नृप-समयेऽभवन् ममोत्पत्तिः ।
रस-गुण ३६ वर्षेण मया सिद्धान्तशिरोमणी रचितः ॥

Siddhānta-śiromaṇi, Golādhyāya, Praśnādhyāya, verse 58.

1. *Alberuni*, II, p. 7.
2. *Ibid*, I, 392.
3. *Ibid*, II, pp. 86, 277 (annotations).
4. A *madhyama meṣa saṅkrānti* fell close to Caitra *śukla pratipadā* of Śaka 427. Dikshit thinks it probable that in order to facilitate calculations of mean motions of planets and *ahargaṇa*, Varāhamihira adopted Śaka 427 as his astronomical epoch, while the *PS* may have been composed a little later. But as *madhyama meṣa saṅkrāntis* also fell close to Caitra *śukla pratipādā* in Śaka 419 and 438, the non-adoption of the latter as astronomical epoch shows that *PS* cannot be later than Śaka 438, vide *HIA*, p. 212.
5. *Literary Remains of Dr. Bhau Daji*, pp. 240-41; cf. A. Weber, *History of Indian Literature*, p. 261, fn. 293.

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sed since its composition.[1] Moreover, in arriving at Varāhamihira's date internal evidence of his own works must be given precedence over the statement of Āmarāja who flourished about four centuries after him. Even admitting his statement to be correct, it is not quite impossible that Varāhamihira was about twnty or twenty-five when he composed the *Pañcasiddhāntikā* in A. D. 505 and that after a long life of about 105 or 110 years died in A. D. 587.[2] No doubt this is quite a high age, but certainly not impossible.

Dr. Bhau Daji and, following him, Dr. Thibaut account for the mention of Śaka 427 by assuming that as "the deduction of 427 forms part of a rule which in the end is said to be 'in' or 'according to' the *Romakasiddhānta*", Śaka 427 refers really to the date of the composition of the *Romakasiddhānta*[3] or of a commentary thereupon or an adaptation thereof[4], whence it was borrowed wholesale by Varāhamihira, a suggestion utterly lacking in plausibility. It is well-known that astronomers do not always adopt the date of the composition of even their own *siddhāntas* as the astronomical epoch in their *karaṇas*. Thus Brahmagupta composed his *siddhānta* in Śaka 550, but the epoch of his *karaṇa*, *Khaṇḍakhādyaka*, is Śaka 587; Bhāskara wrote his *Siddhāntaśiromaṇi* in Śaka 1072 expired but had Śaka 1105 expired for the epoch of his *Karaṇakutūhala*. It is extremely unlikely, therefore, that Varāhamihira should have chosen the date of the *Romakasiddhānta* or its adaptation for the epoch of his *karaṇa*.[5] Dikshit[6] has shown that Śaka 427 (expired) 'is not the date of the *Romaka*, as it is not that of the *Sūryasiddhānta*, the *kṣepakas* according to which also are for Śaka 427 expired.' It is admitted even by Thibaut that 'from the chapters on the *Sūryasiddhānta* it appears that Varāhamihira considers that year (Śaka 427) to be the epoch of his *karaṇagrantha* from which all astronomical calculations have to start; for all the *kṣepa* quanti-

1. *HIA*, p. 211.

2. Cf. *HIA*, pp. 211-12; *Gaṇakataraṅgiṇī*, pp. 11-13 where it is suggested that Varāhamihira may have been about seventeen when he started calculations for his *PS* in A. D. 505.

3. *Literary Remains of Dr. Bhau Daji*, pp. 240-41.

4. *PS*, Introduction, p. XXXVIII.

5. Thibaut is at great pains to explain why Varāhamihira borrowed the year of the *Romaka* as the epoch of his *karaṇa*. cf. *Ibid.*

6. *IA*, XIX (1890), pp. 138 ff.

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ties involved in the different rules, given in those chapters for finding the mean places of the sun, moon and planets, can be accounted for satisfactorily on that basis.'[1] Kern takes his stand on the above statement of Āmarāja as also on Varāhamihira's reference to Āryabhaṭa's opinion in *PS*, XV.20. Kern argued that as Āryabhaṭa was born in A. D. 476[1a], it is unlikely that 29 years after in A. D. 505 a work of his would have become so celebrated as to induce Varāhamihira to quote it as an authority. He was, therefore, led to the strange hypothesis that Alberuni might have erred in taking A. D. 505 as the date of the *Pañcasiddhāntikā*, while it really was the date of Varāhamihira's birth.[2] But as Āryabhaṭa composed his work—the *Āryabhaṭīya*—in A. D. 499, his opinion could well be quoted in a work composed six years later in A. D. 505, and especially so at Ujjain, which being the second capital of the Guptas, had close contacts with Pāṭaliputra and was a famous seat of astronomical learning from very ancient times. It will appear from the above discussion that in all probability the *Pañcasiddhāntikā* was composed in A. D. 505.

(iii) *The Flourishing Period of Varāhamihira's Life*

Colebrooke has shown that as Varāhamihira is mentioned by name in the first book of the *Pañcatantra*, he must be anterior to or contemporary with Khusrau Nushirwan, King of Persia, in whose reign (A. D. 531-579) it was rendered into Pahlvi.[3] Having discussed at length the position of coluses as depicted in the *Bṛhatsaṁhitā*, the same scholar comes to the conclusion that Varāhamihira flourished towards the close of the fifth century A. D.[4] L. D. Swamikannu Pillai, starting from the first approximation A. D. 536, arrives at A. D. 532 as the year of zero *ayanāṁśa* and therefore the epoch of the *Pañcasiddhāntikā*.[5]

1. *PS*, Introduction, p. XXXVII.

1a. षष्टचब्दानां षष्टिर्यदा व्यतीतास्त्रयश्च युगपादाः ।
त्र्यधिका विंशतिरब्दास्तदेह मम जन्मनोऽतीताः ॥

2. *BS*, Introduction, p. 4. B. L. Mukherji (The Date of Varāhamihira's Birth, *JASB*, VIII (1912), pp. 275-278) also takes Śaka 427 to be the year of Varāhamihira's birth.

3. *Miscellaneous Essays*, II, pp. 167, 173. Cf. Kern, *BS*, Introduction, pp. 19-20.

4. *Miscellaneous Essays*, II, pp. 481-82.

5. *Indian Ephemeris*, Vol. I, Pt. I, Appendix, II, pp. 457-58.

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The general consensus of opinion among scholars is thus in favour of assigning Varāhamihira to the last quarter of the fifth and the first half of the sixth century A. D.

There are some other considerations of a general nature supporting this conclusion. Varāhamihira shows acquaintance with Kauṭilya's *Arthaśāstra*[1] and the *Kāmasūtra* of Vātsyāyana[2] which are assigned at the latest to the third and fourth centuries respectively of the Christian era. Thus in LXXVII.1-2 we find mention of some princes who fell a prey to the machinations of their faithless consorts. This list is evidently borrowed from the *Arthaśāstra* (Bk. I, Ch. 20). The description of necklaces in LXXX.31-36 has close similarities, sometimes amounting to identity, with Bk. II, Ch. 11 of the *Arthaśāstra*. The first two quarters of LXXVIII.20 are almost identical with the corresponding portion of the concluding verse of Bk. II. Ch. 32 of the *Arthaśāstra*. Varāhamihira mentions *Arthaśāstra* (ꣳꣳ, XIII.4) which may have reference to the *Kauṭilīya*. Some verses of Chapter 78 of the *Bṛhatsaṁhitā* describing the signs of loving and disaffected women (verses 3-6, 12; 7-8), persons and occasions against which women are to be protected (verses 7-11) and the like seem to be based on certain sections of the *Kāmasūtra*.[3] An erotic remedy recommended in LXXIV.10 is the same as that given in *Kāmasūtra* VII.1.38, while that prescribed in LXXIV.7 very closely approaches the one described in *Kāmasūtra* VII.1.37. The *Vivāhapaṭala* (17) refers to the view of one Vātsya as to the year, month, fortnight and the *tithi* proper for a nuptial. It is difficult to say whether he is identical with Vātsyāyana, but the view attributed to him is not met with in the text of the *Kāmasūtra* as we have it today.

Varāhamihira mentions the *Bhārata* i.e. *Mahābhārata* (ꣳꣳ, XIII. 4), which must have received its present form not later than the fourth century A. D.[4], and reveals knowledge of its contents. The recitation of the *Bhārata* was regarded as sacred. We have a reference to Aśvatthāman killing his enemies when they were asleep (*Drauṇir=yath-ārer=niśi sauptikena*, ꣳꣳ, IV. 39). Varāhamihira attributes certain statements to Dvai-

1. Cf. Keith, *A History of Sanskrit Literature*, p. 461.
2. Cf. *Ibid*, p. 469.
3. Cf. I.5; III.3; V.4, etc.
4. Winternitz, *History of Indian Literature*, I, p. 465.

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pāyana (*BY*, I.15; *YY*, XVI.4), while verses 12, 13 of Chapter I of the *Bṛhadyātrā* are identical with Śāntiparvan 58. 16, 15.

Mention is also made of the *Rāmāyaṇa* (*YY*, XIII.4) which assumed its present form towards the close of the 2nd century A. D.[1]

Our author quotes five verses (LXXIII. 7-11) in the name of Manu; one of these (LXXIII.10) is identical with verse 58 of the 3rd Chapter of the *Manusmṛti* the present text of which was formulated sometime between 200 B. C. and 200 A. D. The combined testimony of all these facts coupled with the mention of Āryabhaṭa (born A. D. 476) shows that the flourishing period of Varāhamihira's life cannot be placed before the last quarter of the fifth century A. D.

The religious conditions as depicted in Ch. 57 of the *Bṛhatsaṁhitā* also point to the same period. According to Varāhamihira, Sūrya should be depicted clad in the Northerners' Dress (*udīcya-veṣa*), holding in both the hands lotuses by their stalks (LVII. 46-48). Though Sūrya images were draped in the Scythian dress even earlier, the other motif—lotuses in both the hands--was evolved in the Gupta period. Describing a four-armed image of Viṣṇu, Varāhamihira states that his two right hands should show *śāntida-mudrā* (*abhaya*) and a mace, and the left ones a conch and a disc.[2] This form was preceded by the 'Maitreya type' of the early Kuṣāṇa period[3] and is illustrated by some Kuṣāṇa sculptures and a single specimen from the Gupta period.[4] This form went out of vogue after the Gupta age. Even in the Gupta period the *śāntida* motif was slowly giving way to another characteristic emblem, a lotus. It indicates that Varāhamihira could not have flourished long after the close of the Gupta age. Moreover, our author allots quite a large number of verses to the iconography of Viṣṇu (5), Śiva (4) and Sūrya (7), but only one verse each to that of the Buddha and Jina. The Buddha is, however, styled as 'the father of the world' (LVII.44). This points to an age when Brāh-

1. For a detailed discussion of the date, see Winternitz, *op. cit.*, pp. 500-517.

2. LVII. 34.

3. V. S. Agrawala, *A Catalogue of the Brahmanical Images in the Mathura Art*, pp. 5-6, Nos. 956, 1729, 2007, 2052, 2487.

4. *Ibid*, p. 10, No. 512.

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manical sects like Vaiṣṇavism, Śaivism and the Sun cult were dominant, but Buddhism had also not yet lost its grip over the masses. This applies best to the Gupta and late Gupta periods.

II. *Personal Life*

All that we know about the personal life of Varāhamihira[1], also known as Varāha[2] and Mihira[3], is based on stray references in his own works and certain observations found in Utpala's commentaries thereon. A verse in the Upasaṁhārādhyāya of the *Bṛhajjātaka* tells us that Varāhamihira was an inhabitant of Avanti (Ujjayinī) and a son of Ādityadāsa[4] from whom he studied through the blessings of the Sun at Kāpitthaka.[5] A perusal of the opening verse of the *Pañcasiddhāntikā*, however, gives the impression that his teacher in astronomy was different from his father.[6] At one place in the *Pañcasiddhāntikā* (XVIII. 61) also Varāhamihira describes himself as *Āvantyaka*. Utpala employs *Āvanta* as his secondary name[7] and styles him *Āvantikācārya*[8] as is also done by Mahīdhara in his commentary on the *Bṛhajjātaka*.[9] As for Kāpitthaka, it must be remembered that manuscripts give several variants like Kāmpilyaka[10] Kām-

1. Varāhamihira mentions his own name in XLVI.2; LXXXV.4; CIII.64; *PS*, XVIII.61, 63, 65; *VP*, 97. *BJ*, XXVIII.9.

2. Cf. *TCSM*. II, Pt. 1-A, p. 2609; IV. Pt. 1, p. 4547, No. 36c8; VI, Pt. 1, p. 7207, No. 5241; H. D. Velankar, *Cat. of Skr. Mss. in Desai Collection of Bombay University Library*, No. 1463. For Varāhamihira's works being referred to as Vārāha, cf. *CSMGOML*, p. 9421, No. 13976.

3. *TCSM*, IV, Pt. 1. Skr.- A, P. 4357.

4. Cf. the beginning of the Daśādhyāyī comm. on *BJ*, where Varāhamihira is styled '*Ādityadās-ātmaja*', *CSMGOML*. p. 9481, No. 14064,

5. आदित्यदासतनयस्तदवाप्तबोधः कापित्थके सवितृलब्धवरप्रसादः ।
आवन्तिको मुनिमतान्यवलोक्य सम्यग्घोरां वराहमिहिरो रुचिरां चकार ॥
BJ, XXVIII.9.

6. दिनकरवसिष्ठपूर्वान् विविधमुनीन्द्रान् प्रणम्य भक्त्यादौ ।
जनकं गुरुं च शास्त्रे येनास्मिन् नः कृतो बोधः ॥
PS, I.1.

7. Cf. the concluding verse of his commentary on *BS*, Ch. II, p. 82.

8. Cf. the introductory portions of his commentaries on *BS*, *BJ*, *YY* and *LJ*. Even Pṛthuyaśas, Varāhamihira's son, is styled by him as *Āvantikācārya*, cf. the beginning of his gloss on the *Ṣaṭpañcāśikā*.

9. *NSM*, VII, pp. 211-2, No. 2453.

10. *Ibid*, IV, p. 11, No. 1376.

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pillaka[1], Kāpiṣṭhala[2], Kāpiṣkala[3] and Kāpitthaka.[4] It is difficult to say which of these readings is really intended. Kāpitthaka is, however, the most popular reading. Sudhakara Dvivedi follows the reading Kāmpilyaka and suggests its identification with Kalpi near Jhansi in Uttar Pradesh,[5] which is untenable, for the ancient name of Kalpi was Kālapriya[5a], not Kāmpilyaka. Kāpittha, according to Utpala, was a village where there was a Sun-temple (*Kāpitth-ākhye grāme yo-sau bhagavān savitā sūryas=tasmāl=labdhaḥ prāpto varaḥ prasādo yena*). It is usually identified with the village of Kayatha, about 12 miles from Ujjain on the Ujjain-Maksi road.[6] Recent excavation conducted by the Vikram University has shown that the site is an ancient one; but there is nothing to prove that it was known as Kāpittha in Varāhamihira's time. We have, however, a definite evidence in the form of Yuan Chwang's *Si-yu-ki* that about a century later the town of Saṅkāśya (modern Sankisa) in the Farrukhabad district of Uttar Pradesh was also known as Kapitha (Kah-pi-t'a).[7] It is not improbable, therefore, that Varāhamihira was born and received his education at Saṅkāśya and migrated to Ujjain later on[8].

It is strange to note that in the introductory portion of his commentaries on the *Bṛhatsaṁhitā* and the *Yogayātrā* Utpala describes Varāhamihira both as *Āvantikācārya* and *Magadha-dvija*, which, if taken in ordinary sense, will be hard to reconcile. As we have seen above, Varāhamihira describes himself as an *Āvantika*, which is at variance with Utpala's statement that he was a Magadha Brāhmaṇa, It is, therefore, tempting to treat the reading *Magadha-dvija* as an error of Mss. for *Maga-dvija*, meaning a priest of the Sun. But such a possibility is precluded by the fact that Utpala repeats his statement at another place (on LXXXV.4). Kern would account for this puzzling statement by suggesting, on the analogy of a modern

1. *NSM*, VII, pp. 211-12, No. 2453.
2. *TCSM*, V, Pt. 1, p. 6587, No. 4497; VI, Pt. 1, p. 7196, No. 5133.
3. *Ibid*, VI, Pt. 1, p. 7196, No. 5233. Cf. also Nos. 2806, 3455.
4. The *Daivajña-vallabhā* attributed to Varāhamihira ends with almost the same verse as *BJ*, XXVIII. 9, cf. *NSM*, IV (1878), pp. 206-7, No. 1633.
5. *Gaṇakatarangiṇī*, p. 11.
5a. Cf. *EI*, VII, p. 37.
6. *Vikrama-smṛtigranṭha* (Hindi), pp. 263, 356.
7. Watters, *On Yuan Chwang* I, p. 333.
8. For a detailed discussion on this question see my paper 'Fresh Light on Varāhamihira's Life' in G. H. Bhatt Memorial Number of *JOI*.

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practice of the Brāhmaṇas to distinguish themselves by the name of the country whence they themselves or their forefathers have come, that Varāhamihira's family derived its origin from Magadha.[1] Sudhakara Dvivedi supposes that he was born in Magadha where he studied astronomy and astrology including Āryabhaṭa's works and later with a longing for fame and wealth left for Ujjain and ultimately settled there permanently.[2] Had it been so, Varāhamihira would not have remained reticent about his Magadha extraction. His silence raises doubts as to the authenticity of the reading and its real implication. D. R. Bhandarkar[3] draws our attention to a passage of the *Bhaviṣyapurāṇa* according to which Magadha denotes here nothing but a Maga (*Magaṁ dhyāyanti ye tasmāt tena te Magadhāḥ smṛtāḥ*, Brahmaparvan, CXVII.55). An instance of the synonymous use of the words Magadha and Maga is offered by a later tradition which makes the Śākadvīpī Brāhmaṇas indigenous : It is said that originally they belonged to Magadha whence they came to be called Magas.[4] Be that as it may, the name-ending Mihira which, according to the *Bhaviṣyapurāṇa*, was the *gotra* of Ṛjihva and is borne at present by many Śākadvīpī Brāhmaṇas, coupled with the mention of the Magas as the only priests of the Sun, makes out a clear case for Varāhamihira's Maga ancestry.[5]

That Varāhamihira was a devotee of the Sun admits of no doubt. His father's name Ādityadāsa, his own name-ending Mihira, derived from Mithra, the Iranian Sun-god, his obtaining a boon from the Sun[6], his obeisance to the Sun in the beginning of all his works except the *Vivāhapaṭala*[7] and his devoting a comparatively larger number of verses to the description of Sūrya icons,[8] all indicate that the Sun was his family deity. His son Pṛthuyaśas also invokes the Sun in the opening verse

1. *BS*, Introduction, pp. 1-2.
2. *Gaṇakataraṅgiṇī*, pp. 12-16.
3. *IA*, XL (1911), p. 19.
4. Risley, *Tribes and castes of Bengal*, I, pp. 159-60.
5. Cf. D. K. Biswas, The Maga Ancestry of Varāhamihira, *IHQ*, XXV (1947), pp. 175-83.
6. *BJ*, XXVIII. 9. Utpala describes him as *arka-vara-lābha-viṛddha-buddhi* and *arka-labdha-vara-prasāda*, cf. *BS*, pp. 1-2.
7. It opens with an invocation to Kāma, the Indian god of love.
8. *BS*, LVII. 46-52.

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of his *Saṭpañcāśikā*. As we have seen above, Varāhamihira was regarded as an incarnation of the Sun.

The opinion of A. N. S. Aiyangar[1] and K. V. R. Aiyangar[2] that Varāhamihira had Vaiṣṇavite or Śrī-Vaiṣṇavite leanings and that he came into contact with the Vaiṣṇava saints (*Āḻwārs*) who were preaching the philosophy of Śri-Vaiṣṇavism in the Tamil country has nothing to commend itself.[3]

The way Varāhamihira stresses the importance of a learned *sāṁvatsara* for a king probably shows that he was patronized by some powerful monarch. Opinions vary on the question as to who that ruler may have been. His identification with Harṣa Vikramāditya of Ujjain (6th Century A. D.) as proposed by Bhau Daji[4] and with the king Vikramāditya, who is said to have ascended the throne in Śaka 466 or A. D. 544, as suggested by Kern,[5] may at best be regarded as conjectures without any basis. Dr. B. Bhattacharya takes the statement of Āmarāja quoted above (i.e. Varāhamihira died in Śaka 509) to refer to the Vikrama era (i.e. he died in A. D. 451) and thinks that he lived in the court of Candragupta II Vikramāditya.[6] The absurdity of his view is obvious from the fact that he has to go to the extent of supposing that the author of the *Pañcasiddhāntikā* is different from that of the *Bṛhatsaṁhitā* and the *Bṛhajjātaka*.

The large variety of topics dealt with by Varāhamihira and his minute knowledge of the economic products of and the customs obtaining in different regions indicate that he must have toured extensively throughout the country.

Tradition also says that he visited a foreign country, probably Yavana. Dr. A.N. Upadhye contributed a short but interesting paper[7] proposing to identify Varāhamihira with Buzūrjmehr who, according to some Persian traditions, rendered the fables of the *Pañcatantra* into Pahlvi at the instance of Khusrow Nushirwan, king of Persia, who ruled from A. D.

1. *Varāhamihira-horāśāstram*, Introduction, pp. XLVII-XLVIII.
2. *Ibid*, foreword, p. VII.
3. The fervour displayed in praising Viṣṇu in *BS*, Chs. 42 and 104, indicates, if anything, religious eclecticism or the then religious beliefs and practices.
4. *Literary Remains*, pp. 240-41.
5. *BS*, Introduction, pp. 15-6, 19.
6. *Vikrama Volume*, pp. 108-109.
7. *IHQ*, IX (1933), pp. 984-6.

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531 to 576. Dr. Upadhye thinks that the word *varāha* in a personal name is not quite palatable and possibly the author's name has a foreign tinge; that his original name might have been Bṛhanmitra; that the presence of *Bṛhat* in the titles of two of his works may not be accidental and the author might be indicating his own name there, for, though the "*Bṛhajjātaka* may be in contrast to his *Laghujātaka*, but it must be remembered that there is no *Laghusaṁhitā* as against his *Bṛhatsaṁhitā*, a title like the *Gargasaṁhitā*, etc."; and that at an early age he had an opportunity to spend some years in a foreign country, probably Persia, where he was known as Buzūrjmehr, the more easily pronounceable form of which is Varāhamihira.

This theory is indeed very ingenious but not convincing Varāha forming part of a name may not be palatable, but is certainly not uncommon and without a precedent. Names like Varāha[1], Varāhadāsa,[2] Varāhadeva,[3] Varāhadinna,[4] Varāhadatta[5] and Varāhasiṁha[6] are known from inscriptions. Even such opprobrious names as Śvetāśvatara, Śunaśśepha, Kauṇapadanta and Vātavyādhi are on record. The word *bṛhat* in the titles of four (not two) of his works does not represent the author's name but stands in contrast to the abridged versions of the same works; we know from a large number of quotations in Utpala's commentary on the *Bṛhatsaṁhitā* that Varāhamihira also wrote an abridged version of the Saṁhitā known as *Svalpa*—or *Samāsa-saṁhitā*. Even admitting for a moment that Varāhamihira visited Persia, it will be extremely strange that he should have referred to himself and should have been known in his native country not by his original name but by a name which is a corruption of its (of Bṛhanmitra) foreign form. Moreover, if at all Varāhamihira visited any foreign country, it must have been Greece or Rome, for he shows close understanding of Greek astrology, highly extols the Greeks' proficiency in astrology and uses a large number of Greek words in Sanskritised form.[7]

1. *Bhandarkar's List*, No. 67.
2. *Ibid*, Nos. 9, 1323.
3. *Ibid*, No. 1712.
4. *Ibid*, Nos. 1195, 1196.
5. It occurs on the Nṛ-Varāha image of the Gupta period found at Eran, now in Sagar University Museum. I owe this information to Prof. K.D. Bajpai.
6. Bhandarkar's List, No. 13.
7. For a deteiled analysis of Dr. Upadhye's theory see my paper in the G. H. Bhatt Memorial Number of *JOI*.

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III. *Legends and Myths*

In the absence of necessary biographical details, many legends and stories have gathered round Varāhamihira, some of which may be recorded here. Ch. 8 of the 3rd Pratisarga-parvan of the *Bhaviṣyapurāṇa*[1] narrates a story which is summarised below :

The astrologer of Satyadatta, king of Kāñcī, had a son, Pūṣan by name, who, on his death, went to the abode of the Sun. The Sun predicted that he would incarnate himself as Mihirācārya in the house of Rudrapaśu at Ujjayinī. He was born in the Mūlagaṇḍānta-viṣaya and Abhijid-yoga and was, therefore, thrown away in a river; he reached Laṅkā where he was brought up by demonesses and studied astronomy; he was sent back to Ujjain by Vibhīṣaṇá; there he remodelled into three divisions the *Jyotiṣa vedāṅga*, which had been destroyed by the Mlecchas.

A mischievous floating verse tells us that Śabarasvāmin, the well-known scholiast of Mīmāṁsā, married four wives from four castes and had six sons from them: Varāhamihira from the Brāhmaṇa wife, Bhartṛhari and Vikrama from the Kṣatriya wife, Haricandra and Śaṅku from the Vaiśya wife and Amara from the Śūdra wife.[2] Dr. Kane informs us that the real name of Śabarasvāmin, who lived sometime between A. D. 100 and 500, was Ādityadeva, the former name being due to his having protected himself from Jaina persecution by passing off as a forester.[3] We cannot be sure if Varāhamihira's father Ādityadāsa can be identified with Śabarasvāmin.[4] But Ādityadāsa is described by some commentators as a learned astrologer (*kārttāntikottama*)[5], whereas Śabarasvāmin was a *mīmāṁsaka*.

Some legends recorded by comparatively modern Jaina

1. Venkateshwar Press (Śaka 1832), pp. 340-41, verses 99-125.
2. ब्राह्मण्यामभवद् वराहमिहिरो ज्योतिर्विदामग्रणीः
राजा भर्तृहरिश्च विक्रमनृपः क्षत्रात्मजायामभूत् ।
वैश्यायां हरिचन्द्रवैद्यतिलको जातश्च शङ्कुः कृती
शूद्रायाममरः षडेव शबरस्वामिद्विजस्यात्मजाः ॥
3. *ABORI*, VI (1925), p. 14.
4. Its probability is admitted by S. K. Dikshit, *IC*, VI, p. 210.
5. Cf. *TCSM*, V, Pt. 1, p. 6587, No. 4499; VI, Pt. 1, p. 7196, Nos. 2806, 3455, 5233.

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writers make Varāhamihira a younger or elder brother of the Jaina patriarch Bhadrabāhu and thereby a contemporary of Candragupta Maurya. Merutuṅga in his *Prabandhacintāmaṇi*[1] (14th century A. D.) records one such story current in his time. We are told that Varāha, a Brāhmaṇa boy of Pāṭaliputra, had from the very childhood an inclination towards astrology. But due to poverty he had to earn his livelihood by grazing the cattle. Once he drew a horoscope on a rock but forgot to efface it before returning home. When he remembered and went to efface it, he found a lion sitting over it. But he effaced it with great courage. The lion appeared before him as the Sun god and being pleased with the boy's courage and faith, showed him all the planets and stars. Since then he came to be called Varāhamihira, became an astrologer of king Śrīnanda and composed the *Vārāha Saṁhitā*. Once when blessed with a son, he predicted full 100 years' life for the boy and all except his younger brother Bhadrabāhu joined the festivities. When asked about the reason, Bhadrabāhu predicted that the child would die on the 20th day and his prediction came true. Being utterly disappointed at this, Varāhamihira was about to consign all the *śāstras* to fire, but was consoled and prevented from doing so by Bhadrabāhu. But Varāhamihira, being jealous of Bhadrabāhu, resorted to black magic and troubled his followers for averting which Bhadrabāhu composed his *Upasargahara-stotra*.

Bhadrabāhu was regarded as the author of two astrological works, a commentary on the *Sūryaprajñapti* and the *Bhādrabāhvī Saṁhitā*. This and similar other stories[2], therefore, appear to have been invented with the intention of showing the superiority of Bhadrabāhu over Varāhamihira, the greatest Brāhmaṇical astrologer, and of Jain astrology over Brāhmaṇical astrology.[3]

On the alleged authority of 'some old Gujarathi text' which he 'heard during his travels', B. Suryanarayana Rao narrates a marvellous story[4] which may be summarised as follows: Ādityadāsa and Satyavatī alias Indumatī, inhabitants

1. V. 218-219.
2. Cf. T. L. Shah, *Ancient India*, II, p. 269, IV, pp. 234, 338-339.
3. Cf. H. Jacobi, *The Kalpasūtra of Bhadrabāhu*, introduction, pp. 13-4.
4. *Life of Varāhamihira*, 2nd Ed. Bangalore 1945.

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of Kapittha *agrahāra*, 100 miles south-west of Ujjain, got a son in their fifties and named him Mihira, for he was born in fulfilment of a boon of the Sun god. Impressed by his extraordinary skill in astrology, Vikramāditya made him a gem of his court. When Vikramāditya's queen bore a son, Mihira predicted that he (the son) would be killed by a boar on a particular day in a certain month in the 18th year. When in spite of all possible precautions this prophecy came out true, the emperor was greatly impressed and honoured the great astrologer by conferring on him the emblem and the style of Varāha, whence he came to be known as Varāhamihira.

IV. *Known Works*

The science of astronomy is divided into three branches (*skandhas*), viz., 1. *Tantra* or mathematical astronomy, 2. *Horā* including nativity, horoscopy for weddings and nuptials and prognostications for journeys, and 3. *Saṁhitā* or mundane astrology (I.9). As Varāhamihira says himself, he composed works in all the three branches (CVI.14; *BJ*, XXVIII.6). The first branch is at present represented only by what he calls *Karaṇa*[1] and which Utpala and Alberuni refer to and is known at present as *Pañcasiddhāntikā*, apparently because it epitomises the salient features of the five *Siddhāntas* current in his time, namely, the *Pauliśa*, the *Romaka*, the *Vāsiṣṭha*, the *Saura* and the *Paitāmaha*.[2] Utpala's commentary on the *Bṛhatsaṁhitā* abounds in quotations from the *Pañcasiddhāntikā*. But Alberuni (I. 153) had prabably no access to it, for he had no correct idea of its contents. "Varāhamihira", says he, "has composed an astronomical handbook of small compass called *Pañcasiddhāntikā*, which name ought to mean that it contains the pith and marrow of the preceding five Siddhāntas. But this is not the case, nor is it so much better than they as to be called the most correct one of the five. So the name does not indicate anything but the fact that the number of Siddhāntas is five." The work was lost for all practical purposes, and the patient

1. I. 10; V. 18; XVII.1; XXIV.5; CVI.14; etc.; *PS*, XVIII.65; *BJ*, XXVIII.6.

2. For Bentley's view attributing all the five *Siddhāntas* to Varāhamihira, see *AR*, VI (1806), pp. 537 ff; VIII (1808), pp. 195 ff.

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investigations of Sanskritists yielded only two badly preserved manuscripts on the basis of which it has been edited by G. Thibaut and Sudhakara Dvivedi along with a Sanskrit commentary by the latter (Banaras, 1889). Its value for historical purposes can hardly be overestimated for it forms the only source of our knowledge of the contents of the aforesaid five *Siddhāntas* and the views of some earlier astronomers whose works are lost to us irrecoverably. From the introductory portion of Utpala's gloss on the *Laghujātaka* it appears that Varāhamihira prepared an abridged version of his *Karaṇa* also which is no more extant (*Varāhamihiro.....jyotiḥśāstrasaṅgrahaṁ kṛtvā tad=eva vistaraṁ granthabhīrūṇāṁ kṛte saṅkṣiptaṁ gaṇitaśāstraṁ kṛtvā horāśāstraṁ vaktukāmaḥ*).

His works in the other two branches exist in a double form—copious and abridged. The *Bṛhajjātaka*, the *Bṛhadvivāhapaṭala*, and the *Bṛhadyātrā* along with their abridged versions, the *Laghujātaka*, the *Svalpavivāhapaṭala*, and the *Svalpayātrā* belong to the second branch. Alberuni (I,158) informs us that the *Bṛhajjātaka*[1] was commented upon by Balabhadra who flourished sometime before Utpala. The commentaries available at present are : (1) the Jagaccandrikā, also known as Cintāmaṇi and Vivṛti, by Utpala, (2) the Jātaka-vivaraṇa by Mahīdhara,[2] also known as Mahīdāsa and probably identical with the celebrated commentator of the *Vājasaneyī Saṁhitā* and the author of the *Mantramahodadhi* (A. D. 1581),[3] (3) the Nīlotpalīyā,[4] probably so called after the name of the commentator, (4) the Prakāśa by Nityaprakāśa Sūri,[5] (5) the Daśādhyāyī,[6] (6) the Naukā, also known as Horā-vivaraṇa or Varāhamihira-horā-tātparya-sāgara[7], and (7) the Subodhinī.[8] Of these only Utpala's commentary has so far been published. The *Laghujātaka*, also known as *Svalpa*—or *Sūkṣma-jātaka*, was commented

1. It was also known as *Varāhahorāśāstra* or *Varāhamihirahorāśāstra*, cf. *CSMGOML*, p. 9481.
2. *NSM*, VII, pp. 211-212, No. 2453.
3. *CSPMBBRAS*, I, p. 122, No. 370.
4. *CSMGOMLM*, p. 646.
5. *CSMGOMLM* (Suppl.), p. 16.
6. *CSMGOML*, p. 9481, No. 14064.
7. *TCSM*, III, Pt. 1, p. 4026, No. 2806; V. Pt. 1, p. 6587, No. 4499; VI, Pt. 1, p. 7196, No. 5133; p. 7207, No. 5241.
8. *TCSM*, II, Pt. 1, Skr.-A, p. 1279, No. 970; *CMSML*, p. 7675, No. 11536.

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upon by Utpala and rendered into Arabic by Alberuni (I,158). The great popularity enjoyed by these two works is attested to by a large number of commentaries in Sanskrit as also in modern Indian languages. The *Bṛhadyātrā* or the *Bṛhadyogayātrā* was also known as *Mahāyātrā* and had a gloss by Sūryadeva Somasut of Naidhruva *gotra* as will appear from the concluding part of his gloss on Muñjāla's *Laghumānasa* (*tato Varāhamihira-kṛtā Mahāyātrā saṅkṣepato vyākhyātā*).[1] It was also called *Yakṣye śvamedhikā*[2] or *Yakṣyeśvāmedhīyā Yātrā*,[3] evidently after its 2nd verse *Yakṣye=śvamedhena vijitya*, etc. The text is preserved in the Government Oriental Manuscripts Library, Madras,[4] and in the Library of the Bombay Branch of the Royal Asiatic Society[5] and has been recently edited critically by V.R. Pandit (not yet published). He has also edited the *Svalpayātrā*, also known as *Ṭikaṇikayātrā*.[6] Varāhamihira is also known to have composed another work on journeys called the *Yogayātrā* which, Utpala says, was written by him because he regarded the *Yakṣyeśvamedhīyā Yātrā* as imperfect (*tatr-ādau Yakṣye=śvamedhīyāṁ Yātrāṁ vidhāya tām=aparipūrṇāṁ manyamāno=parāṁ Yogayātrāṁ cikīrṣuḥ*, Utpala on *YY*, I.1.[7] Its first nine chapters were edited by H. Kern and the entire work has been published by J. L. Sashtri. The last edition is very badly prepared and a critical edition of the entire work will be of great value for students of cultural history. It has a commentary by Utpala[8] which is yet to be published. In his gloss on the *Bṛhajjātaka* (XX.10), Utpala mentions both the large and abridged versions of the *Vivāhapaṭala*. A *Vivāhapaṭala* is preserved in a single manuscript which forms the basis of the unpublished edition of V.R. Pandit. It is commented upon by Utpala. It is difficult to say whether the extant text represents larger or smaller version.

1. *TCSM*, III, Pt. 1, p. 3916, No. 2741; IV, Pt. 1-A, p. 4428, No. 3037.
2. Utpala on *BS*, p. 71. Bhandarkar Oriental Research Institute Ms. No. 856 of 1884-1887, New No. 24, folio 1.
3. Utpala on *YY*, I.1.
4. *Author Index of Skr. Mss. in Govt. Oriental Mss. Library*, Madras, p. 81.
5. *CSPMBBRAS*, p. 128, No. 388.
6. *JUB*, XX, Pt. II (September 1957), pp. 40-63.
7. *B. O. R.* I, Ms. No. 856 of 1884-1887, New No. 24, folio 1.
8. *CSPMBBRAS*, pp. 128-29, No. 389, *NSM*, I (1871), p. 28, No. XLVII. As noted in the preceding note, a manuscript of the text with Utpala's gloss is preserved in B. O. R. Institute also.

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The *Bṛhatsaṁhitā*, also known as *Vārāhī Saṁhitā*, comes under the third branch. Its text was edited by Kern (Calcutta, 1864), and Sudhakara Dvivedi published it along with Utpala's commentary (Banaras, 1895-1897). It was translated into Arabic by Alberuni (I,389; II,277) and into English by Kern (only 84 chapters).[1] The Utpala-parimala, an abridged and simplified version of Utpala's commentary, by Bhāskara, son of Kumāra and grandson of Rāma of Naidhruva Kāśyapa *gotra* and Vārṣaganya family,[2] still awaits publication. The abridged version of the *Bṛhatsaṁhitā*, called *Samāsa*—or *Svalpa-saṁhitā*, is known to us only from quotations in Bhaṭṭotpala's commentary.[3] Alberuni's silence about it indicates that the work was lost as early as the first half of the 11th century.[4]

V. *Other Works Attributed to Varāhamihira*

Apart from the above-mentioned works, Alberuni refers to the *Horāpañcahotṛya* (sic) and a book on architecture (title missing) as Varāhamihira's writings. Utpala's silence about the alleged work on architecture seems to indicate that Chs. 52, 55 and 56 of the *Bṛhatsaṁhitā* dealing with architecture were also studied independently which fact led Alberuni to treat it as a separate work. We have instances of several chapters of the *Bṛhatsaṁhitā* being independently copied and studied. Thus independent manuscripts of *Citramayūra* (Ch. 46),[5] *Jalārgala-śāstra*[6] or *Dṛgargala*[7] (mistake for *Dagārgala* or *Dakārgala*, Ch.

1. JRAS, 1870-75.

2. *CSMGOML*, Nos. 13585-13589; NSM, IX, pp. 329, 643; *Catalogue of Skr. and Prakrit Mss. in the Library of India Office*. II, Pt. 1, No. 6326, p. 785.

3. I have recently collected and edited these extracts in my paper, 'Contribution towards the Reconstruction of the Samāsa-saṁhitā of Varāhamihira,' *BV*, XXIII (1963), 22-39.

4. *A Classified Catalogue of Sanskrit Printed Works in the Govt. Oriental Library*, Mysore (1922) mentions the *Bṛhajjyotiṣa* or *Brāhmaṇotpatti-mārtaṇḍa* as another work of Varāhamihira (No. C188). I have not been able to Consult it.

5. Hiralal, *Cat. of Skr. and Prakrit Mss. in C. P. and Berar, Nos.* 1687, 3884; Kielhorn, *A Classified Alphabetical Cat. of Skr. Mss. in the Central Provinces*, p. 236, No. 108.

6. *A Classified Cat. of Skr. Printed Works in Govt. Oriental Library*, Mysore, 1922, p. 74, No. B. 478; *Cat. of Skr. Mss. in Private Libraries of South India*, Nos. 461, 3146, 3146, 3147.

7. *CSPMBBRAS*, I, p. 81, No. 243.

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53), and *Prāsāda-lakṣaṇa*[1] (Ch. 55) are recorded in manuscript catalogues.

Alberuni (I,158; II,277) is certainly mistaken in assigning to Varāhamihira the *Ṣaṭpañcāśikā* which is really a work of his son Pṛthuyaśas.[2]

1. *Vaṭakaṇikā* : Dr. Kane has shown from references in Ballālasena's works that Varāhamihira wrote a work on portents called *Vaṭakaṇikā* whence about 120 verses are cited in the *Adbhutasāgara*.[3]

2. *Śṛṅgāra-taraṅgiṇī* : Raghunātha Manohara (between A. D. 1675 and 1700) in his *Kavi-kaustubha*, a work on poetics, mentions the *Śṛṅgāra-taraṅgiṇī* as a work of Varāhamihira (*Varāhamihirasya Śṛṅgāra-taraṅgiṇyām*, fol. 12).[4] A commentary on the *Amaru-śātaka*, entitled Śṛṅgāra-taraṅgiṇī, by Sūryadāsa or Sūryasūri is noticed by Aufrecht[5] and Dikshit.[6] It is possible that Raghunātha Manohara may have mistaken in assigning the commentary to Varāhamihira. But it seems more probable that our author composed an independent treatise on erotics or poetics.

The following works, still existing in manuscripts only, are also attributed to Varāhamihira :—

3. *Pañca-pakṣi* : It is a short treatise on divination by means of the letters *a*, *i*, *u*, *e* and *o*, with a commentary. It is written in Devanāgarī characters of about A. D. 1750. The text ends on folio 10b. It concludes with the verse—

1. *Catalogue of Skr. Mss. in Private Libraies of South India*, p. 206, No 2959

2. It is strange to find that some Mss. of the *Ṣaṭpañcāśikā* are actually wrongly ascribed to Varāhamihira (V. W. Karambelkar, *Catalogue of Sanskrit Mss. in Nagpur University Library*, No. 2335; W. Taylor, *Cat. of Oriental Mss. in the College Fort*, St. George, p. 317) and described as a supplement to *BJ* (*Ibid*, p. 79, No. 2075) or *BS* (R. L. Mitra, *Cat. of Skr. Mss. in the Library of the Maharaja of Bikaner*, Calcutta, 1880, p. 337), while others are attributed to Bhaṭṭotpala (Karambelkar, *Op. cit.*, Nos. 2336-2339, 2341) or Dāmodara Daivajña (*Ibid*, No. 2340). It is also referred to as *Ṣaṭpañcaśatī* (W. Taylor, *Op. cit.* , No. 2075) which is a misnomer. It was also known as *Praśna-mahodadhi* and ascribed to Pṛthuyaśas, wrongly described as Bhaṭṭotpala's son (*CSMGOML*, Nos. 13954, 13957, 13959). The *Samara-vijayodaya* is another work attributed to Pṛthuyaśas (*CSMGOMLM*, p. 366).

3. All-India Oriental Conf., XXIst Session, *Summaries of Papers*, p. 47. The paper has since been published in *Vishweshwarananda Indological Journal*, I, pp. 63-65.

4. P. K. Gode, *Studies in Indian Literary History*, III, p. 37, fn. 1.
5. *Catalogus Catalogorum*, I, p. 660.
6. *HIA*, p. 272.

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Varāhamihireṇ=oktaṁ sadyaḥ pratyayakārakam l
Lagnāṁśa-kaṭhinaṁ jñātvā samāsena svaśaktitaḥ ll[1]

4. *Daivajña-vallabhā* : It is a treatise on divination. It ends with the same verse as *BJ*, XXVIII.9, except for the substitution of *Horāṁ Varāhamihiro rucirāṁ cakāra* by *Yatnād=etāṁ Varāhamihiro racayāñcakāra.*[2] That it cannot be a work of Varāhamihira is obvious from the opening stanza which contains invocation to Iśvara, who is described as Bhairava and Advaita, instead of Sūrya, his family deity.

5. *Praśna-cūḍāmaṇi* : A treatise on divination in 86 verses. It is probably a work of late origin (Śaka 1686) by one Candraśekhara.[3]

6. *Praśna-mahodadhi* : A treatise on *Praśna-vidyā* with Śrīdhara's gloss. It breaks off in the 7th chapter, and extends from folio 27a to 37b. It begins with the verse—

Varāhamihir-ārthakya (-cārya) kṛta-Praśna-mahodadhau l
Śrīdharaḥ kurute vṛttiṁ pūrvaṁ lok-ānukampayā ll[4]

7. *Praśna-candrikā*[5] : It seems that Varāhamihira actually composed a work on *Praśna*. His authority on this subject is quoted in Nīlakaṇṭha's *Jyotiṣa-kaumudī*[6] and Nārāyaṇa's *Praśna-Vaiṣṇava.*[7]

8. *Aṅga-cūḍāmaṇi* : It consists of 225 *ślokas* and covers 47 folia written in Bengali characters.[8]

9. *Jātakārṇava-saṅgraha* : A Ms. of *Jātakārṇava* preserved in Nepal Durbar Library has three chapters.[9] In the India Office Library, the same Ms. bears the title *Chāyādhikāra* and

1. *Catalogue of Skr. and Prakrit Mss. in the Library of India Office*, II, Pt. 1, p. 843, No. 6439; H. D. Velankar, *Cat. of Desai Collection in the Bombay University Lib. Nos.* 1468-1470.

2. *NSM*, IV (1878), pp. 206-7, No. 1633; *CSMM*, III, p. 168, Nos. 1423, 168.

3. *NSM*. I, p. 229; III, p. 81.

4. *TCSM*, II, pp. 1612-14, No. 1288.

5. *Cat. of Skr. Mss. in the Deccan College Library*, XIV (1881-82), foll. 38; *Cat. of Skr. and Prakrit Mss. in C. P. and Berar*, No. 3161.

6. *Cat. of Skr. Mss. in Desai Collection of Bombay 'Varsity Library*, No. 1463

7. *CSMGOML*, pp. 9420-21, No. 13976; *Cat. of Skr. Mss. in Bombay University Library*, No. 1483.

8. *NSM* (2nd Series), III, Pt. 1 (1904), p. 1, Sanskrit No. 1572, *New Catalogus Catalogorum*, I, p. 496.

9. H. P. Sastri, *Cat. of Palm-leaf and Skr. Mss. in Nepal Durbar Library.*

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has seven chapters.[1] Elsewhere it is said to consist of 84 verses covering 6 folia.[2]

10. *Yogārṇava.*[3]
11. *Jyotiṣārṇava.*[4]
12. *Sūtikādhyāya.*[5]
13. *Puṣkaraṇyādi-paddhati.*[6]
14. *Taḍāga-paddhati.*[7]
15. *Jātakābharaṇa.*[8]
16. *Daśā-cintāmaṇi.*[9]

VI. *Chronological Order of Known Works*

There is sufficient evidence, internal and external, for determining the relative chronology of Varāhamihira's works. That the *Bṛhatsaṁhitā* was his last major work and was preceded by his writings on mathematical astronomy and horoscopy is evidenced by the statements of Varāhamihira himself and his commentator Utpala. The latter in the introductory portion of his commentary on the *Bṛhatsaṁhitā* says that the author undertook the composition of the *Saṁhitā* after he had finished his works on the first two branches of Jyotiṣa (*gaṇitaskandha-horāskandhau saṅkṣiptau kṛtvā saṁhitāskandhaṁ saṅkṣiptaṁ cikīrṣuḥ.* Cf. *Yady=api gaṇitaskandha-horāskandhau prāg=ev-oktau*, on I.8) and Varāhamihira tells us the same thing (*Hor-ānyo=ṅgaviniścayaś=ca kathitaḥ skandhas=tṛtīyo=paraḥ*, I.9). We are told that the retrograde and direct motions of planets along with their eclipse and reappearance[10], the determination of the magnitude of the sun's eclipse by the moon's deflections and the actual time of the conjunction of the sun and the moon,[11] the method of

1. Eggling's *Catalogue*, No. 3082.
2. *NSM* (2nd Series), IV (1911), pp. 69-70.
3. Bühler, *Report on a Tour in Search of Skr. Mss. in Kaśmir, Rajputana and Central India, Bombay*, 1877, No. 545.
4. Sambasiva Sastri, *Cat. of Skr. Mss. in H. H. Maharaja Palace Library*, Trivandrum, III, pp. 1172-74.
5. *Cat. of Skr. Mss. at Jammu*, p. 176, Nos. 836, 1058, 1182, 2940, 2954.
6. Darbhanga, Ms. No. 229.
7. *Ibid*, No. 107.
8. Hiralal, *Cat. of Skr. and Prakrit Mss. in C P. and Berar*, No. 1797.
9. *Ibid*, Nos. 2167, 2168.
10. वक्रानुवक्रास्तमयोदयाद्यास्ताराग्रहाणां करणे मयोक्ताः ॥ I.10.
11. अवनत्यार्के ग्रासो दिग् ज्ञेया वलनयाऽवनत्या च ।
तिथ्यवसानाद् वेला करणे कथितानि तानि मया ॥ V.18.

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predicting planetary conflicts[1] and the conjunction of the moon with the constellation of Rohiṇī[2] were already dealt with by him in the *Karaṇa* which, Utpala says, is the same as the *Pañca-siddhāntikā*. We also learn from the *Bṛhatsaṁhitā* that Varāhamihira had already treated of the auspicious and inauspicious signs of fire (XLII.31), marks of the altar, priest and fire in connection with planetary sacrifice,[3] movements of horses and elephants betokening good and bad results[4], revelation of future by dreams[5], the mode of propitiating planets at the planetary sacrifice[6] and the auspicious and inauspicious articles seen at the commencement of a journey[7] in his work on *yātrā*. In most cases Varāhamihira seems to refer to the *Bṛhadyātrā* whence Utpala quotes relevant verses, while in some cases the *Yogayātrā* appears to be intended. On XLII.31, Utpala takes *Yātrā* to mean the *Yogayātrā* (*Yātrāyāṁ vistaro=bhihitaḥ, Yogayātrāyāṁ vistara ukto mayā*) and quotes seven verses the first five of which are *YY*, VIII.9-12, 14. On XLIII.18, Utpala quotes four verses from the *Yogayātrā*, two on the movements of horses (XI. 15, 14) and two on those of elephants (X.62-63)[8]. On L.7, he cites *Siddhārthak-ādarśapayo=ñjanāni* and *Karpās-auṣadha-kṛṣṇa-*

1. युद्धं यथा यदा वा भविष्यमादिश्यते त्रिकालज्ञैः ।
तद्विज्ञानं करणे मया कृतं सूर्यसिद्धान्तात् ॥ XVII.1.

2. योगो यथानागत एव वाच्यः स धिष्ण्ययोगः करणे मयोक्तः ॥ XXIV.5.

3. यात्रायां यदभिहितं ग्रहयज्ञविधौ महेन्द्रकेतौ च ।
वेदीपुरोहितानललक्षणमस्मिंस्तदवधार्यम् ॥ XLIII.14.

4. त्रस्यन् नेष्टो राज्ञः परिशेषं चेष्टितं द्विपहयानाम् ।
यात्रायां व्याख्यातं तदिह विचिन्त्यं यथायुक्ति ॥ XLIII.18.

5. सदसत्स्वप्ननिमित्तं यात्रायां स्वप्नविधिरुक्तः ॥ XLVII.22.

6. ग्रहयज्ञे यः प्रोक्तो विधिर्ग्रहाणां स कर्तव्यः ॥ XLVII.29.

Cf. Utpala : ग्रहाणामादित्यादीनां यात्रायां ग्रहयज्ञे योऽयं विधिः प्रोक्तः कथितः स एवात्र विधिः कर्तव्यः ।

7. यात्राविधाने हि शुभाशुभं यत्
प्रोक्तं निमित्तं तदिहापि वाच्यम् । L.7.

8. V. R. Pandit's unpublished edition. These verses are not included in J. L. Shastri's edition.

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dhānyam which are the beginnings of *YY*, XIII.10 and XIII.14 respectively. On CIII. 60, he introduces two verses with the phrase *Yātrā-kālo=bhihita ācāryeṇa*; the second verse is *YY*, I.19. There can thus be no doubt that both the major works on *yātrā* were composed before the *Saṁhitā*. In XCV.13, Varāhamihira refers to his work on nativity.[1] It is stated in the concluding verse of the *Bṛhatsaṁhita* that the author had already composed his treatises on *yātrā*, *jātaka* and *karaṇa*.[2] It would appear from I.10 that the works on horoscopy composed before the *Bṛhatsaṁhitā* were major ones, viz., the *Bṛhajjātaka*, the *Bṛhadyātrā*, the *Yogayātrā* and the *Bṛhadvivāhapaṭala*.[3] The *Bṛhatsaṁhitā* was thus the last in the series of his bigger works.

The absence in the *Pañcasiddhāntikā* of references to any of his writings as having been composed earlier, the explicit statement that he would deal with certain astrological matters in the work to be composed after the *Horā* and *Tantra* (i. e. *Bṛhatsaṁhitā*)[4], the mention in the *Bṛhajjātaka* of the *Karaṇa* (i. e. *Pañcasiddhāntikā*) as an earlier work (XXVIII.6) and the fact that the *Karaṇa* is almost always mentioned first in the order of enumerating earlier works followed by both Varāhamihira and Utpala show that the *Pañcasiddhāntikā* was his first composition.

Both Utpala (*jyotiḥśāstra-saṅgrahakṛt gaṇitasakandh-ānantaraṁ horāskandhaṁ cikīrṣuḥ*) and Mahidhara (*...gaṇitaskandh-ānantaraṁ horāskandhaṁ cikīrṣuḥ*)[5] aver in the introductory por-

1. एवं प्रोक्तं यन्मया जन्मकाले चिह्नं रूपं तत्तदस्मिन् विचिन्त्यम् ॥
Cf. Utpala— जन्मकाले जातकसमये.

2. अत्रैवान्तर्भूतं परिशेषं निगदितं च यात्रायाम् ।
वह्वाश्चर्यं जातकमुक्तं करणं च बहुचोद्यम् ॥ CVI.14.

3. होरागतं विस्तरशश्च जन्म यात्राविवाहैः सह पूर्वमुक्तम् ॥
Cf. Utpala—एतदुक्तं भवति बृहज्जातकं बृहद्यात्रा बृहद्विवाहपटलं मयाऽदावेव विरचितमिति ।

4. वर्षे यद् यस्य फलं मासे च मुनिप्रणीतमालोक्य ।
तत्तद्वृत्तैर्वक्ष्ये होरातन्त्रोत्तरंविधाने ॥ *PS*, I.22.

The reference is to Ch. XIX of *BS*. The phrase *horātantr-ottarai idhāne* is usually taken to refer to the *Bṛhajjātaka*, which is incorrect. It should be taken to mean the work composed after the *Horā* (*BJ*) and *Tantra* (*PS*), the irregularity of the chronological order being due to metrical considerations.

5. *NSM*, VII. pp. 211-12, No. 2453.

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tion of their commentaries on the *Bṛhajjātaka* that it was taken up immediately after the *Pañcasiddhāntikā*. The *Bṛhajjātaka* refers to the *Vivāha* (XXIV.16) and *Yātrā* works (XXVIII.3) as to be composed in future. Utpala also states that the *Vivāhapaṭala* was yet to be written (*vakṣyamāṇa-Vivāha-paṭal-okta..*, on *BJ*, XXIV.16). The *Bṛhadyātrā* mentions the *Jātaka* as composed earlier (*Yath-oktaṁ jātake sarvaṁ tath-aiv-ātr-āpi cintayet*, *BY*, II.8) and makes a pointed reference to its Prakīrṇakādhyāya (*Ādau prakīrṇak-ādhyāya-coditāḥ kārak-ākhyāś=ca*, *BY*, XI.15) which is Ch. 22 of the *Bṛhajjātaka*. The *Yogayātrā* (IV.52) and the *Vivāhapaṭala* also refer to the *Jātaka* as an earlier work (*Uktaṁ janmani yat tad=eva bhavitā yady=aṅganānāṁ phalam*, *VP*, 16; *Pūrvaṁ ca yad=yuvati-janma-vidhau may-oktam*, *VP*, 97).[1] In the introduction to his gloss on the *Yogayātrā*, Utpala says that the author first composed the *Pañcasiddhāntikā*, then *Jātaka*, then the *Yakṣyeśvamedhīyā Yātrā* and that he considered the last mentioned work to be imperfect and therefore composed the *Yogayātrā*[2]. He also avers that the *Vivāhapaṭala* was written after the *Yātrā* works (*Varāhamihiro jyotiḥśāstrādi-saṅgraha-kṛd=yātrā-vidhānād=anantaraṁ Vivāhapaṭalaṁ cikīrṣuḥ*, introduction to the comm. on *VP.*).[3] It will seem from the above discussion that the major works were composed in the following chronological order: (i) *Pañcasiddhāntikā*, (ii) *Bṛhajjātaka*, (iii) *Bṛhadyātrā*, (iv) *Yogayātrā*, (v) *Vivāhapaṭala* and (vi) *Bṛhatsaṁhitā*.

It seems that after completing all his major works, Varāhamihira retouched them from an editor's point of view and introduced some editorial remarks here and there. This fact explains the *Pañcasiddhāntikā* (XV.10) reference to the *Saṁhitā* and the *Bṛhajjātaka* (XXVIII.6) reference to the *Vivāhapaṭala* and the *Saṁhitā* in the past tense.

Nothing definite can be said regarding the chronological position of the abridged versions of the above works. The open-

1. The reference is to Ch. 24 of *BJ*.

2. तदयमपि वराहमिहिरो ज्योतिःशास्त्रसंग्रहकृद् गणितस्कन्धानन्तरं जातकमुक्तवान्, तदनन्तरं प्रयाणपूर्विकां... यक्ष्येश्वमेधीयां यात्रां विधाय तामपरिपूर्णां मन्यमानोऽपरां योगयात्रां चिकीर्षुः...

B.O.R. Institute Ms. No. 856 of 1884-1887, New No. 24, folio 1.

3. Fol. 1a, ll.4-7, quoted by V. R. Pandit, p. 173.

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ing verse of the *Laghujātaka* tells us that it was composed after the *Bṛhajjātaka*.[1] But Utpala in the beginning of his gloss (Hitā) on the *Laghujātaka* informs us that the author first abridged his work on mathematical astronomy and then *Horaśāstra*.[2] Thus there are two possibilities; either each smaller work was written immediately after the corresponding major work or all the smaller works were composed subsequent to the *Bṛhatsaṁhitā*.

VII. *The Bṛhatsaṁhitā*

Being the last major work, the *Bṛhatsaṁhitā* is a product of mature age and accumulated experience It is a monument of encyclopaedic learning and a source-book of inestimable value to a student of Indian cultural history. Our author has brought topics of varied interest within the purview of his *Saṁhitā* as will be revealed by a cursory review of its contents.

After introducing the subject and describing the qualifications of an expert diviner in the first two chapters, the author deals in the next eleven chapters (3-13) with the motions of the sun, the moon, planets, Rāhu, comets, Canopus and the Great Bear. Chs. 14-6 allot countries, peoples and various objects to constellations and planets and are followed by four chapters (17-20) treating of planetary conflicts, the conjunction of the moon with planets, the years presided over by each of the planets and their results, and planetary triangles. Chs. 21-8 are very important to students of rainfall in ancient India. Ch. 29 describing prognostics from the growth of fruits and flowers is followed by an account of dawn and twilight (30), conflagration of quarters (31), earthquake (32), meteors (33), haloes round the luminaries (34), rainbow (35), aerial city (36), mock sun (37) and hurricane (38). Astrological factors accounting for the growth and prosperity of crops and other commodities and the fluctuation of prices are treated of in Chs. 39-41. The mode of celebrating the festival of Indra's banner forms the subject-matter of Ch. 42. Ch. 43 contains the oldest extant account of the lustration (*nīrājana*) of horses, elephants

1. होराशास्त्रं वृत्तैर्मया निबद्धं निरीक्ष्य शास्त्राणि ।
यत् तस्याप्यार्याभिः सारमहं सम्प्रवक्ष्यामि ॥ *LJ*, I.1.

2. Cf. *supra*, p. 26.

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and men, a rite which is still very popular. Prognostics from the movements of a wagtail are given in Ch. 44. Portents and ceremonial ablution called *Puṣya-snāna* claim one chapter each (45, 47), the intervening chapter (46) being devoted to a summary of the foregoing topics. Details about ornamental gold-bands and swords are found in Chs. 48-9. Next two chapters deal with the *aṅgavidyā* and the signs of moles, etc. The five chapters dealing with residential (52) and temple architecture (55), plasters (56), iconometry and iconography (57) and sculptural materials (58) are the oldest extant texts on the subject and considerably add to our knowledge of Indian architecture and sculpture. The only extant account of the exploration of water-springs is found in Ch. 53 and that of arbori-horticulture in Ch. 54. Some verses (111-115) of Ch. 53 give certain means of breaking hard rocks. The installation of images is dealt with in Ch. 59. Seven chapters (60-66) are devoted to fauna. Next three chapters treat of the signs of men (67) and woman (69) in general and of the five great men (68) in particular. After mentioning beliefs pertaining to cloths (70), Varāhamihira proceeds to describe fly-whisks (71), parasols (72) and erotic remedies (75). He offers unstinted tribute to womanhood (73) and extols certain ethical qualities as the best means of winning over others (74). The Gandhayukti section (76) dealing with cosmetics and perfumery is of great value for the history of applied chemistry in ancient India. The union of man and woman and matters relating to pregnancy dealt with in Ch. 77 would better form subject-matter of a treatise on erotics and medicine. We get an interesting account of raw materials and techniques of fashioning furniture in Ch. 78. Next four chapters (79-82) deal with trade in precious stones including pearls and pearl-necklaces. Our author had first hand information of the subject as will appear from the mention of certain code-words in use among dealers in pearls. Two short chapters enumerate beliefs about lamps (83) and toothsticks (84). Next eleven chapters (85-95) are devoted to *śākunas*. Some purely astrological matters are dealt with in Chs. 96-103. The ritual of Rūpa-satra occupies Ch. 104. The following two chapters give some concluding editorial remarks (105) and table of contents (106).

As will be clear from the above survey of contents, many

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chapters are of a highly specialised nature and were for this reason studied as independent treatises by people anxious for specialisation in different branches of practical knowledge. As we have already shown, Alberuni remembers Varāhamihira as an authority on architecture and the sections on temple acrhitecture and exploration of water-veins were studied independently. It is on account of Chs. 79-82 dealing with precious stones that he was regarded as an authority on *Ratnaśāstra*.[1]

The *Bṛhatsaṁhitā* is extremely valuable from another point of view also. Utpala styles Varāhamihira as *mahāgranthabhīru* and *samāsoktipriya*, i. e., unwilling to harp on a topic at length and preferring to make brief statements. It is confirmed by Varāhamihira himself (cf. I.2-5). He was a man of encyclopaedic learning. He studied older works not only in Sanskrit but also in Prakrit (LXXXV.3). He had good knowledge of Greek astrology and uses no less than thirty-six Greek words.[2] Though he did not lack in critical faculty (cf. V.1-18), it is his practice to quote older authorities (cf. IX.7). In consequence, the work has become a treasure-house of information about a host of earlier writers and their works whose names would have been lost to us otherwise.

Varāhamihira was not only an astronomer but also a poet of a high order. He shows skill in the use of figures of speech and an exceptionally large number of metres. Ch. 103 couched in about 60 different metres with their names inserted in relevant verses forms a rich tribute to his efficiency in versifying.[3] XII.1-11; XIII.1-2; XIX.16; LV.4-7 and Chs. IV and V of the *Yogayātrā* are especially remarkable for skilled use of some of the *arthālaṅkāras*.[4] It is interesting to note in the present context that Kṣemendra in his *Aucitya-vicāra-carcā* (26.79) mentions Varāhamihira as a poet.

We may conclude this chapter with a few words about the extent of the *Bṛhatsaṁhitā*. If the concluding chapter (106) is left out of account, it would consist of 105 chapters as commented by Bhaṭṭotpala and edited by Sudhakara Dvivedi. Dr. Kern's edition contains an additional chapter entitled Rajo-

1. Caṇḍeśvara, *Ratna-dīpikā*, I.3.
2. Kern, *BS*, Introduction, pp. 28-29.
3. For a list of metres used by Varāhamihira, cf. *ZDMG*, XLIV, pp. 4-15; *JBBRAS*, XXIV-XXV, 63-4.
4. Cf. Keith, *A History of Sanskrit Litrature*, pp. 532-3.

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lakṣaṇam (Ch. 38 of his edition). But the penultimate verse of the *Bṛhatsaṁhitā* (CVI. 13) tells us that it consists of 100 chapters and extends over less than 4000 *ślokas*. According to Utpala, this number is obtained by omitting the chapters entitled Vāta-cakra (27), Aṅga-vidyā (50), Piṭaka-lakṣaṇa (51), Aśva-lakṣaṇa (65) and Hasti-lakṣaṇa (66). But Varāhamihira excludes Chs. 91 (Gaveṅgita), 101 (Rāśi-vibhāga) and 102 (Vivāha-paṭala) also from the table of contents. Utpala informs us that Ch. 102 was composed by Vindhyavāsin (*Atha prasaṅg-āgataṁ Vindhyavāsi-kṛtaṁ vivāhapaṭālaṁ vyākhyāyate*). Thus the number remains only 97. It is difficult to say how we can obtain the figure 100. Utpala declares XXV.6, XXVII.9-10 and XXVIII.17 to be spurious (*anārṣa*). XXVIII. 23-4 are not commented upon by him and may be regarded as later interpolations.

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CHAPTER II

GEOGRAPHICAL DATA

1

INTRODUCTORY

An accurate geographical knowledge is one of the most essential prerequisites of all historical studies. History and geography of a country go hand in hand. In the case of India, however, many ancient place-names frequently referred to in historical records have become obsolete and are substituted by modern ones which afford little, if any, clue to locate them correctly. The importance of a text, particularly a datable one, dealing with ancient Indian geography can, therefore, be hardly overstressed. It is from this point of view that Ch. 14 of our work, locating various peoples, countries and places in different directions, along with a number of topographical references scattered throughout the text, possesses a unique value.[1] Lists of peoples and countries are no doubt contained in the Purāṇas, but they lose much of their value, firstly because these works cannot be even approximately dated and secondly because they have been frequently handled by copyists and scribes in subsequent ages resulting in textual corruption. Being considerably free from these defects,[2] our work enjoys a certain precedence over these lists.

It must be pointed out at the very outset that Utpala's gloss on Ch. 14 of the *Bṛhatsaṁhitā* is not at all enlightening and he often confines himself to mere paraphrasing. It is not, however, beyond the bounds of possibility that the commentary has not come down to us in its original form and the possibility of

1. Fleet published 'The Topographical List of the Brhatsaṁhitā' in *IA*, XXII, pp. 169 ff.; but he confined himself merely to cataloguing names of peoples, countries, etc., and very sparingly giving early epigraphical references. It is for the first time here that we have collected all relevant references, classified them under different heads and suggested identifications wherever possible.

2. In support of freedom from textual corruption it may be pointed out that *BS* correctly mentions Mekalāmbaṣṭha and Pauṇḍrotkala (xiv. 7) which the *Mārkaṇḍeya-Purāṇa* corrupts into Mekalāmuṣṭha and Pūrṇotkaṭa. Cf. H. C. Raychaudhuri, *Studies in Indian Antiquities* (hereafter referred to as *Antiquities*), p. 37.

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certain omissions here and there cannot be altogether ruled out. It finds some support from the fact that the following statement, which Alberuni (I.298) attributes to Utpala, cannot be traced in the extant text of the commentary: "The names of countries change, and particularly in the *yugas*. So Multan was originally called Kāśyapapura, then Haṁsapura, then Bāgapura, then Śāmbapura, and then *Mūlasthāna* i.e., *the original place*, for *mūla* means root, origin, and *Tāna* (*sthāna*) means place."[1]

I. *Bhāratavarṣa*

Varāhamihira deals with the topography of what he calls Bhāratavarṣa (XIV.1). Alberuni (I.197-8) says that Varāhamihira understood by Bhāratavarṣa India alone. It is evidenced by the fact that he refers to the rulers of Pañcāla, Magadha, Kaliṅga, Avanti, Ānarta, Sindhu-Sauvīra, Hārahaura, Madra and Kuṇinda as representing Madhyadeśa, the eastern, south-eastern, southern, south-western, western, north-western, northern and north-eastern divisions respectively (XIV.32-3). All these regions evidently belonged to India proper. But Varāhamihira, it is interesting to note, mentions Suvarṇabhū (XIV.31), generally identified with Burma, Malaysia and eastern archipelago, and Siṁhala (XIV.15) or Ceylon as parts of Bhāratavarṣa in the north-east and south respectively. And this brings us to the wider sense in which the name Bhāratavarṣa was sometimes used. According to the Purāṇic cosmography, Bhāratavarṣa, one of the nine *varṣas* of Jambudvīpa, is divided into nine divisions (*khaṇḍas* or *bhedas*) which are said to be separated from each other by seas and mutually inaccessible, viz., Indradvīpa, Kaserumān, Tāmraparṇa, Gabhastimān, Nāgadvīpa, Saumya, Gandharva, Varuṇa, and the 9th *dvīpa*, which is described as surrounded by oceans, 1000 *yojanas* in extent from north to south and as inhabited by the Kirātas and Yavanas in the east and west respectively, is left unnamed in some of the Purāṇas, while it is called Kumāra in the *Vāmanapurāṇa* (XIII.2, 11, 59). Rājaśekhara also in Ch. 17 of his *Kāvyamīmāṁsā* names the nine divisions of Bhāratavarṣa and calls the ninth one as Kumārī-

1. S. N. Majumdar Sastri (Introduction to *CAGI*, p. 1) also quotes this statement as Utpala's, evidently relying on Alberuni.

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dvīpa wherein are said to be situated the seven *Kulaparvatas*[1], viz., the Vindhya, Pāriyātra, Śuktimān, Ṛkṣa, Mahendra, Sahya and Malaya.[2] Tāmraparṇa of these lists corresponds to our Simhala. It goes without saying that these cannot be nine divisions of India proper, 'for India is not traversed by an ocean separating one *khaṇḍa* from the other'.[3] It is the 9th division that corresponds to India proper. Thus while Varāhamihira employs the name Bhāratavarṣa mainly for India proper,[4] the inclusion of Burma and Ceylon which really formed parts of Greater India shows his acquaintance with the wider Purāṇic concept of Bhāratavarṣa.

The origin of the name Bhāratavarṣa is differently accounted for in different works. Thus while some of the Purāṇas derive it from king Bharata, the son of Ṛṣabha, a descendant of Svāyambhuva Manu,[5] others assert that in consequence of maintaining his subjects Manu was himself styled Bharata and that after him the country came to be called Bhāratavarṣa.[6]

1. Cf. LXXII.2 where the word *naga* meaning a mountain is used to denote the numeral 7.

2. तत्रेदं भारतं वर्षम् । अस्य च नव भेदाः । इन्द्रद्वीपः, कसेरुमान्, ताम्रपर्णो, गभस्तिमान्, नागद्वीपः, सौम्यो, गन्धर्वो, वरुणः, कुमारीद्वीपश्चायं नवमः । पंचशतानि जलम्, पंच स्थलमिति विभागेन प्रत्येकं योजनसहस्रावधयो दक्षिणात् समुद्रादद्रिराजं हिमवन्तं यावत् परस्परमगम्यास्ते ।.....तत्र च कुमारीद्वीपे :— विन्ध्यश्च पारियात्रश्च शुक्तिमान् ऋक्षपर्वतः । महेन्द्र-सह्य-मलयाः सप्तैते कुल-पर्वताः ।।

Kāvyamīmāṁsā, p. 92.

3. Cf. *Alberuni* (I, 295) : 'Bhāratavarṣa is not India alone as Hindus think'. For suggestions regarding the identification of some of these *dvīpas* see *CAGI*, pp. 749-54; Raychaudhuri, *Antiquities*, pp. 83-5; V. S. Agrawala, *Vāmana-purāṇa—A Study*, pp. 28-29; *Matsya-purāṇa—A Study*, pp. 192-193.

4. It is used in this limited sense in the *Vāyupurāṇa* XLV. 75-6; *Viṣṇu-purāṇa* II.3.1; *Mahābhārata* (Bhīṣmaparvan Ch. 9); *Matsya-purāṇa* CXIV.10, etc. In the Hathigumpha Inscr. of Khāravela it is referred to as Bharadhavasa which seems to denote North India, cf. *EI*, XX, p. 79, line. 10.

5. *Bhāgavata*, XI.2.15 f.; *Garuḍa* Ch. 54; *Brahmāṇḍa*, XXXIV.55; *Mārkaṇḍeya*, LIII.41; *Vāyu*, XXXIII.51-2.

6. *Matsya*, CXIV.5; *Brahmāṇḍa*, XLIX.10. Cf. D. R. Patil, *Cultural History from the Vāyu Purāṇa*, p. 262. Alberuni's remarks (I.295) are worth quoting—'We find a tradition in the *Vāyu-Purāṇa* that the centre (*sic*) of Jambudvīpa is called Bhāratavarṣa, which means those who acquire something and nourish themselves.'

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The Jaina work *Jambudīva-paṇṇatti* derives it from king Bharata whose sovereignty was established over the country.[1] Dr. H. C. Raychaudhuri suggests to derive it from the celebrated Bharata people who played an important role in the political life of India in the Vedic and Epic times[2]. According to some of the Purāṇas the country was originally called Himāhva[3] or Haimavatavarṣa[4], a name evidently derived from the Himalayas.

II. *Kūrma-vibhāga*

Ch. 14 of our work which treats of the topography of India is styled *Kūrma-vibhāga*[5] or *Nakṣatra-kūrmādhyāya*.[6] The significance of the word *kūrma*, which originally denoted the back of a tortoise, is not quite clear. The word *kūrma-vibhāga* is probably due to the belief that the shape of the globe corresponds to that of a tortoise lying outspread, with its face towards the east. The *Mārkaṇḍeya-purāṇa* (LVIII.73-74) speaks of this tortoise as being identical with the god Nārāyaṇa. It may, therefore, be rendered as 'the division of the globe'.[7]

Varāhamihira divides India into nine parts, viz., Madhyadeśa or the Central Region and four major and four minor directions from east to north-east and assigns them to the nine triads

1. B. C. Law, *India as described in the Early Texts of Buddhism and Jainism*, p. 14; *Historical Geography of Ancient India* (hereafter referred to as *Historical Geography*), p. 10.
2. *Antiquities*, p. 77.
3. Patil, *Op. cit.*, p. 268; *Brahmāṇḍa*, XXXIV.55.
4. *Ibid*, XXXV.30; *Matsya*, CXIII.28.
5. In Kern's and V. S. Sastri's ed.
6. In S. Dvivedi's ed.
7. Cf. Kern's remarks (*JRAS*, 1871, p. 81, fn. 1):—"The word *Kūrma* is the specific Sanskrit form of a word once common to all Indo-European tongues, viz., *Kūrma*, Lat. *culmus*, Teuton, *holm*, etc. It does not originally denote the 'tortoise' itself, but its back, for the proper meaning is 'mound, buckle, half-globe, holm.' Even in Sanskrit in such compounds as *kūrmonnata*, the word signifies the form of the back of the tortoise. At the time when the word *Kūrma-vibhāga* became current, *Kūrma* was taken in its proper sense. Yet in later times, they wholly mistook the meaning and made an absurd drawing, representing a tortoise, as if *Kūrma* could denote a level. The rendering by 'Globe' is not wholly exact, since properly only a half-globe, a holm is supoosed to be raised above the waters".

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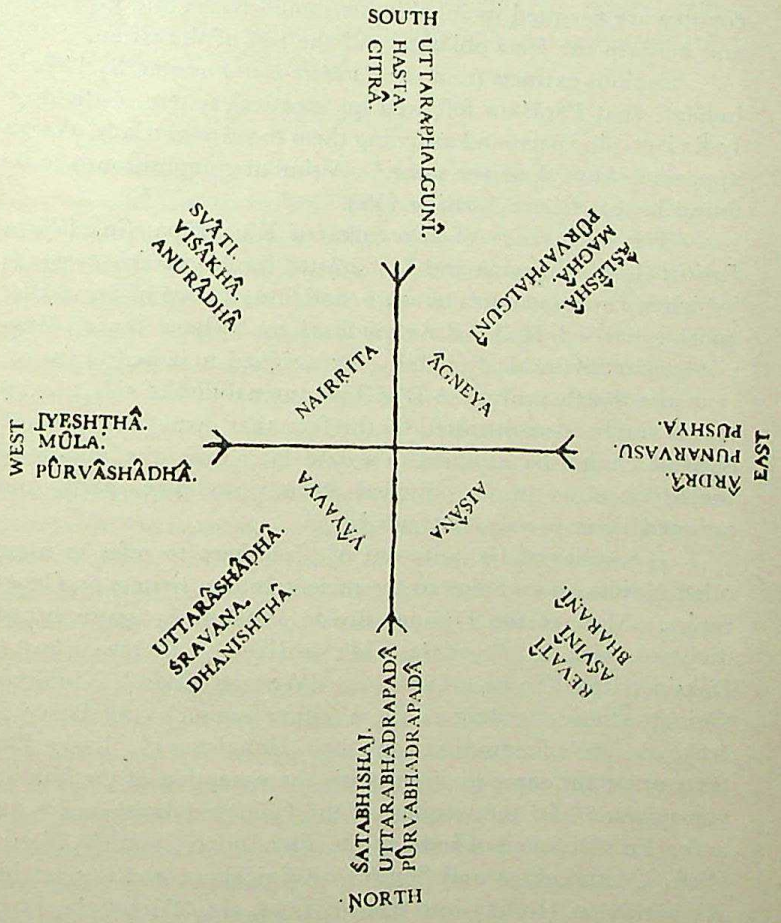
of constellations commencing with Kṛttikā[1] in the following manner[2] :—



This division is aimed at determining what countries and peoples will suffer disaster when their particular constellations

1. नक्षत्रत्रयवर्गैराग्नेयादिर्व्यवस्थितैर्नवधा ।
भारतवर्षे मध्यप्रागादिविभाजिता देशाः ॥ XIV.1.

Alberuni (I.295) informs us that Indian astrologers were accustomed to divide each country into nine parts and to try to find out lucky and unlucky places in it. He explains the *kūrma-cakra* as follows :—"Their astronomers and astrologers divide the directions according to the lunar stations,...and the figure which represents this division is similar to a tortoise. Therefore it is called *kūrma-cakra*, i. e. the tortoise-circle or the tortoise-shape (I.296-97)."

2. This diagram is taken from Alberuni (I.297) who says he had borrowed it from the *Saṁhitā* of Varāhamihira.

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are occulted by malefic planets.[1] The *Mārkaṇḍeya-purāṇa* (LVIII.80-81) enjoins that when planets and constellations of a country are occulted its inhabitants should bathe and give alms and perform the *homa* oblation and the rest of the ritual.

Copious extracts from the *Parāśara-tantra* quoted by Utpala indicate that Parāśara followed an identical system of dividing India into nine parts and assigning them to *nakṣatra*-triads. Garga appears to have done the same.[2] A similar composition is to be found in the *Atharva Pariśiṣṭa* (56).

The occurrence of references to Kāmarūpa (in *Atharva Pariśiṣṭa*), Vardhamāna and Mahārāṣṭra (in *Mārkaṇḍeya-purāṇa*)[3], 'which are unknown to literature and inscriptions of an earlier epoch', has led H. C. Raychaudhuri to believe that '*kūrma-vibhāga* cannot in all probability be assigned to a period earlier than the fourth century A.D'.[4] The untenability of this suggestion is amply demonstrated by the fact that even Garga, whose *Saṁhitā* cannot be assigned to a date later than the middle of the first century B. C., divided India into nine parts and assigned them to *nakṣatra*-triads.[5]

It would not be quite out of place here to refer to some other classifications followed by ancient Indian writers on Geography. Most of the Purāṇas divide India into seven broad divisions, viz., Madhyadeśa, Udīcya (North), Prācya (East), Dakṣiṇāpatha (South), Aparānta (Western Coast), Vindhyavāsinaḥ (those dwelling in the Vindhya region), and Parvatāśrayiṇaḥ (people dwelling on the Himalayas).[6] Early Pali texts name the same divisions with the exception of the Vindhyan people.[7] In the writings of the Chinese pilgrims we come across Five Divisions of India or the 'Five Indias', namely, North, West, Central, East and South.[8] Rājaśekhara also divides his Kumārīdvīpa (India) into five divisions, viz., Pūrvadeśa, Dak-

1. For application of this formula see XIV.32-3.
2. See citations from Garga in Utpala's commentary on XIV.1.
3. Vardhamāna and Mahārāṣṭra are also named by Varāhamihira, cf. XIV.7; X.8.
4. *Antiquities*, p. 49
5. Cf. Garga cited by Utpala on XIV. 1.
6. *CAGI*, pp. 665-66; Raychaudhuri, *Antiquities*, p. 87.
7. B. C. Law, *Early Texts of Buddhism and Jainism*, p. 18.
8. *CAGI*, pp. 13-4.

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ṣiṇāpatha, Paścāddeśa, Uttarāpatha and Madhyadeśa.[1] At the root of this system lies the division into five great regions already met with in the *Atharvaveda* (XIX.17.1-9) and the *Aitareya-brāhmaṇa* (VIII.14).[2]

III. *Divisions of India*

Our author names the following divisions of India :—

(i) *Āryāvarta* : Varāhamihira refers to the inhabitants of Āryāvarta (*Āryāvartāḥ*, V.62). The word Ārya is also mentioned in V. 42 where Utpala takes it to mean chief people (*pradhāna-jana*). Kern thinks that it denotes the inhabitants of Āryāvarta.[3] It is variously defined in different works. The *Baudhāyana-dharmasūtra* (I.i.27) and Patañjali (*Mahābhāṣya*, II.4.10; VI.3.109) define Āryāvarta as the land to the east of Ādarśa or Vinaśana (the sands of Patiala where the river Sarasvatī loses itself) and to the west of Kālaka-vana (near Allahabad) and as extending from the Himavat in the north to the mountain Pāriyātra (western part of the Vindhyas together with the Aravalli range) in the south. The *Vasiṣṭha-dharmasūtra* (I. 8-9) repeats this definition but extends its southern limit to Vindhya. Baudhāyana (I.i.28) and Vasiṣṭha (I.12) quote an unnamed authority identifying it with the Gaṅgā-Yamunā-Doab. Manu (II.22) takes it to denote the whole of Northern India lying between the Himavat and Vindhya and extending as far as the eastern and western seas.[4] It would thus appear that with the spread of Aryan culture towards the south and east the limits of Āryāvarta in these directions were also extended. In consequence it became a customary name for Northern India. It is used in this sense in Samudragupta's Allahabad Pillar Inscr. where it is contrasted with Dakṣiṇāpatha or South India.[5] Rājaśekhara in his *Bāla-Rāmāyaṇa* (Act VI) speaks of the river Narmadā as the dividing line between Āryāvarta and Dakṣiṇāpatha.

(ii) *Madhyadeśa* :[6] Manu (II.21) makes it conterminous

1. *Kāvyamīmāṁsā*, pp. 93-4.
2. Raychaudhuri, *Antiquities.*, p. 87, fn. 1; *PHAI*, pp. 156 f.
3. *JRAS*, 1870, p. 463, fn. 1.
4. *Cf. Pūrvāparayoḥ samudrayoḥ Himavad=Vindhyayos=c=āntaram= Āryāvartaḥ, Kāvyamīmāṁsā*, Ch. XVII, p. 93.
5. *CII*, III, p. 7, line 21.
6. V.30, 51, 78, 90; VIII.46; X.5; XI.35; XVII.19, 20, 22; XVIII.4; XLVI.7; LXVIII.18.

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with the Āryāvarta of Vasiṣṭha when he says that Madhyadeśa denotes the region lying between the Himavat and Vindhya mountains and to the west of Prayāga and to the east of Vinaśana. The Buddhist literature extends the eastern boundary of Madhyadeśa so as to include within its limits Magadha and Aṅga. Thus according to the *Mahāvagga* (V.13.12) it is bounded on the east by Kajaṅgala (somewhere in Rajamahal District), in the south-east by the river Slalavati (Śarāvatī), in the south by the town of Setakaṇṇika, in the west by the Brāhmaṇa village of Thūṇa (probably modern Thaneswar) and in the north by the Uśīradhvaja mountain (Uśīragiri, a mountain to the north of Kankhal, Hardwar). The *Divyāvadāna* includes even Puṇḍravardhana within its limits.[1] Aśvaghoṣa speaks of Madhyadeśa as situated between the mountains Himavat and Pāriyātra (*Madhyadeśa iva vyakto Himavat-Pāriyātrayoḥ, Saundarananda*, II.62). The Central India of the Chinese pilgrims 'comprised the whole of the Gangetic province from Thaneswar to the head of the Delta and from the Himalaya mountain to the bank of the Narbada.'[2]

Dr. J. F. Fleet held that Varāhamihira's description of Madhyadeśa closely agrees with that of Manu. But this view does not appear to be correct, for a *Samāsa-saṁhitā* passage quoted by Utpala clearly shows that according to Varāhamihira the southern limit of Madhyadeśa was formed by the Pāriyātra mountain.[3] It is noteworthy in this connection that Varāhamihira places the people inhabiting the neighbourhood of the Vindhyas (*Vindhy-ānta-vāsinaḥ*, XIV.9) in the south-eastern division, not in Madhyadeśa.[4]

(iii) *Antarvedī* (V.65) : It is the Gaṅgā-Yamunā Doab which is also mentioned as Gaṅgā-Yamun-āntarāla (LXVIII.26).

1. *CAGI*, p. XLIII; B. C. Law, *Texts of Buddhism and Jainism*, pp. 20-1; *Historical Geography*, pp. 12-3.

2. *CAGI*, p. 14.

3. For the *Samāsa-saṁhita* passage and discussion of this question see my paper in *BV*, XXIII, pp. 22 ff.

4. For some epigraphical references to Madhyadeśa see *CII*, III, p. 285; IV, pp. 424, 429, 513, 516; N. G. Majumdar, *Inscriptions of Bengal*, III, 16 ff.

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According to Rājaśekhara, the stretch of territory between the place of the disappearance of the Sarasvatī and Prayāga and the Gaṅgā and the Yamunā was called Antarvedī.[1] The Indor copper-plate inscr. of the time of Skandagupta refers to Indrapura (the village of Indor in Bulandshahar District, U. P.) as situated in Antarvedī.[2]

(iv) *Dakṣiṇāpatha* (IX.40; XLVI.8) : It is Dachinabades of the *Periplus of the Erythraean Sea* (50-51)[3] and denotes the Indian Peninsula lying to the south of the Narmādā, particularly Deccan. According to Rājaśekhara, Dakṣiṇāpatha lay to the south of the town of Māhiṣmatī usually identified with Onkar-Mandhata in the Nimad District of Madhya Pradesh or with Maheshwar in the former Indore state (*Māhiṣmatyāḥ parato Dakṣiṇāpathaḥ, Kāvyamīmāṁsā*). It will, however, appear from the definitions of Āryāvarta and Madhyadeśa given above that Dakṣiṇāpatha lay to the south of the Vindhyas. The Sātavāhanas are described as the lords of Dakṣiṇāpatha.[4] In the Allahabad Pillar Inscr. of Samudragupta, Dakṣiṇāpatha is used as a name of South India as opposed to the North called Āryāvarta.[5]

(v) *Uttarāpatha* (IX.41) : Though in a narrower sense it denotes north-western portion of India, it is often used as a customary designation for North as a whole. Rājaśekhara tells us that it lay beyond Pṛthūdaka[6] (Pehoa, Karnal District, Panjab). In the Hathigumpha Inscr. of Khāravela ,it is distinguished from Magadha.[7] Bāṇa seems to exclude Sthāṇvīśvara (Thaneswar) from Uttarāpatha.[8] In some early Cālukya records Harṣavardhana is styled as 'the lord of the whole of Uttarāpatha.'[9] Originally Uttarāpatha, as indicated by its

1. *Vinaśana-Prayāgayoḥ Gaṅgā-Yamunayoś=c-āntaram=Antarvedī, Kāvyamīmāṁsā*, p. 94.
2. *CII*, III, p. 68.
3. Schoff's edition. Hereafter cited as *Periplus*.
4. *SI*, pp. 172, 187, 198. *Lüders' List*, Nos. 965, 1112, 1123.
5. *CII*, III, p. 7, lines 19-20; also p. 13, fn. 5.
6. *Pṛthūdakat parata Uttarāpathaḥ, Kāvyamīmāṁsā*, p. 94.
7. *EI*, XX, pp. 79-80. It is also mentioned in Guserawa Inscr., *JASB*, XVII, pp. 492, 498.
8. *Harṣa-carita*, V, p. 210.
9. *IA*, IX, p. 127.

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name, was a great trade-route which gave its name to the country through which it passed.[1]

(vi) *Aparānta* : Varāhamihira locates Aparāntaka in the Western division (XIV.20) and refers to its inhabitants (*Aparāntakān*, V. 70[2]; *Aparāntya*, IX.15). Literally meaning 'the western end', Aparānta seems to signify the whole of the western sea-board of India. In a limited sense, it denotes the northern Konkan.[3] In Rock Edict V of Aśoka, it seems to be used for Western India where the Raṭhikas, Pitinikas, etc. lived. Kālidāsa locates it between the Sahya mountain (northern part of the Western Ghats) and the ocean (*Raghuvaṁśa*, IV.53). It is the same as Rājaśekhara's Paścāddeśa which lay to the west of Devasabhā.[4] Ptolemy[5] and the *Periplus* (41) refer to it by the name Ariake.[6]

Besides, Varāhamihira refers to the Eastern division as Prācya (V.69; LXXXV.75).

We may close this section with a brief reference to the difficulties which present themselves in the treatment of our data. Firstly, Varāhamihira's geography is of a conventional character and should not therefore be expected to furnish materials which might enable us to frame an accurate map of India in his own time. A comparison of the extracts from the *Parāśara-tantra* as quoted by Utpala with the corresponding verses of Ch. XIV of the *Bṛhatsaṁhitā* leaves little doubt that the latter really represent the geography of the *Parāśara-tantra* or perhaps still more ancient works.[7] Secondly, there are certain discrepancies regarding the location of places and countries. Thus while in

1. It may be identified with the Northern Route of Strabo and Pliny which ran from East India to Gandhāra and thence towards further west, cf. Agrawala, *India as known to Pāṇini*, pp. 244-5.

2. A Kanheri inscription (*Lüders' List*, No. 1013) styles a female from Aparānta as Aparāntikā, feminine form of Aparāntaka. She is at the same time called (Kāli)aṇikā, or an inhabitant of Kalyāṇa, indicating the inclusion of kalyāṇa into Aparānta. In No. 1014 she is called only Kāliyiṇikā.

3. *Collected Works of Sir R. G. Bhandarkar*, III, pp. 6, 17.

4. *Kāvyamīmāṁsā*, p. 94.

5. Mc Crindle, *Ancient India as described by Ptolemy* (S. N. Majumdar Sastri's ed., hereafter referred to as *Ptolemy*), p. 175.

6. Aparānta is also mentioned in the Nasik Cave inscr. of Vāsiṣṭhīputra Puḷumāvi, the Junagadh inscr. of Rudradāman I and other records, cf. *SI*, pp. 172, 196.

7. Cf. *BS*, Introduction, pp. 32-3.

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his detailed enumeration of the countries he assigns Sindhu-Sauvīra to the South-western division (XIV.17); elsewhere it is located in the west (XIV.33). This discrepancy, as pointed out by Cunningham[1], is at least as old as the eleventh century A. D., for Alberuni (I.298) enumerates the countries in the same order as the extant text of the *Bṛhatsaṁhitā*. Similarly, Avanti and Hārahaura are not mentioned among the countries of the south and north-west respectively, but elsewhere they are mentioned as representing these very divisions (XIV.33). So also he places Kaccha and Girinagara in the southern division XIV.11, 16), but locates Raivataka in the south-west (XIV. 19), while the latter is quite close to Girinagara (modern Junagadh) and to the south of Kaccha (Cutch).[2] Thirdly, peoples bearing the same names are sometimes placed in more than one division. The Bhadras, for instance, are located variously in Madhyadeśa (XIV.2), east (XIV.7) and south (XIV.16), and the Ambaṣṭhas are placed in the eastern as well as south-western divisions (XIV.7, 17). Lastly, some of the peoples and places mentioned appear to be fabulous. Thus people with the face like that of a horse (*Aśvamukha* XVI.34; *Aśvavadana* XIV.6; *Turagānana* XIV. 25), a dog (*Śvamukha* XIV.25), or a tiger (*Vyāghramukha* XIV.5), with one foot (*Ekapāda* XIV.7; *Ekacaraṇa* XIV.31), one or three eyes (*Ekavilocana* XIV.23; *Trinetra*, *Ibid.*) and the neck resembling that of a serpant (*Vyālagrīva* XIV.9), and people living or roaming in the sky (*Khastha* XIV.22; *Khacara* XIV.28; *Diviṣṭha* XIV.31) do not appear to be creatures of our earth. However, they might have some totemic significance which cannot be determined for want of relevant data.

It would have indeed been desirable to present our data direction-wise, but as references of a geographical nature are found in astrological contexts throughout the *Bṛhatsaṁhitā* and other works of Varāhamihira, it is found more practicable to arrange our topographical list lexiconically under different heads like physical features, peoples and countries, and cities and towns.

1. *CAGI*, p. 7.
2. Cf. *IA*, XXII, pp. 169-70.

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II

PHYSICAL FEATURES

I. *Mountains*

1. *Añjana* (XIV.5). Varāhamihira places it in the eastern division. In the Jātakas, it is mentioned as a mountain in the great forest.[1] It is mentioned in the *Rāmāyaṇa* (Kiṣkindhā Kāṇḍa, 37.5) and the *Mārkaṇḍeya-Purāṇa* (LVIII.11). As it is placed in the eastern division, it must be distinguished from the Sulaiman range in the Panjab separating it and N. W. F. P. from Baluchistan, which was also known by this name. It is interesting to note in this connection that the Jātakas refer to a forest of this name situated near Sāketa.[2]

2. *Arbuda* (V.68; XVI.31; XXXII.19), Mt. Abu in the Arāvali range in Rajasthan.

3. *Astagiri* (XIV.20), in the west, is the mythical 'mountain of sun-set.'[3]

4. *Citrakūṭa* (XVI.16), in the southern division (XIV.13), is situated in the district of Banda, 65 miles west-south-west of Allahabad, and about 4 miles from the Chitrakut station. It is also known as Kamptanathagiri.[4]

5. *Dardura* (XIV.11), in the southern division, is identified with the Nilgiris or Palni Hills.[5] Kālidāsa speaks of Dardura and Malaya as the two breasts of the southern quarter (*Stanāv=iva diśas=tasyāḥ śailau Malaya-Dardurau, Raghu*, IV.51). Like Malaya, it was celebrated for the sandal wood (*Mahābhārata*, II.52. 34; *Raghu*, IV.51).

6. *Dhanuṣmān* (XIV.24), a hill in the northern division. Alberuni (I.302) takes it to mean 'the people with bows,' which is incorrect.

7. *Gomanta.* Varāhamihira refers to the inhabitants of the Gomanta mountain (V.68; IX.13[6]; XVI. 16). In two out of the three places, Utpala takes it to mean 'per-

1. R. N. Mehta, *Pre-Buddhist India* (hereafter referred to as Mehta), p. 369.
2. *Ibid.*
3. Cunningham (*CAI*, p. 103) identifies it with Mt. Abu.
4. Pargiter, The Geography of Rāma's Exile, *JRAS*, 1894, p. 239.
5. *JRAS*, 1894, p. 262.
6. This reference is not given by Fleet.

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sons possessing cows' (V.68; IX.13), while in the third case he says that Gomanta may denote either people owning cows or a mountain (*Gomantaḥ gominaḥ parvato vā*, XVI.16) But the first meaning proposed by Utpala goes against the rules of grammar, according to which *gomantaḥ* and *gomataḥ* should be the nominative and accusative plural forms of the word *gomat*. But Varāhamihira, it must be noted, employs the form *gomanta* even in compounds (V.68; XVI.16) and *gomantān* in accusative plural (IX.13), which clearly shows that the word intended is *gomanta* and not *gomat*. Thus the word should invariably be taken as the name of a hill only. Gonanda is a variant reading given by Utpala on V.68. Pargiter[1] identifies it with the hill of Gwalior, which, according to Cunningham, was originally called Gopācala, Gopagiri and Gopāhvaya, and later Gomanta.[2] But as according to the *Harivaṁśa* (Viṣṇuparva, 39, 62-64) it lay to the south of the town of Vanavāsī, it is more reasonable to place it in the Mysore region as suggested by Raychaudhuri.[3] And Chandragutti in the Shimaga district of the Mysore State was actually known as Gomanta-parvata.[4] It is, thus, a part of the Sahya range. Dey thinks that it was situated in the country about Goa.[5]

8. *Hemagiri* (XIV.19), a mountain in the south-western division, probably Kanakagiri near Mysore.

9. *Himavat* (XVI.16), in the northern division (XIV. 24), is the famous Himalayan range forming the natural boundary of India in the north. Varāhamihira refers to the camara deer (LXXI.1), diamond mines (LXXIX.7) and pearl-fisheries of the Himalayas (LXXX.2, 5). He speaks of the Himavat and the Vindhya mountains as the breasts of the earth (*Himavad* = *Vindhya-payodharā dharā*, XLII.35; *YY*, VIII.17). He refers to the people of Antargiri (*Antargirijān*, V. 42) about which Kern remarks, 'I am not able to say which part of the Himalayan hill-country was called Antargiri; it may be Kumaon, or a still more

1. *Mārkaṇḍeya-purāṇa*, p. 288 note.
2. *CASR*, II, pp. 372-3.
3. *Antiquities*, p. 117.
4. *EC*, VIII; L. Rice, *Mysore and coorg from the Inscriptions*, p. 112.
5. Dey, *Geographical Dictionary of Ancient and Mediaeval India* (hereafter cited as Dey), p. 70.

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eastern district.'[1] Dr. V. S. Agrawala identifies it with Pali Mahāhimavant or the great central Himalaya, which includes its loftiest peaks.[2] We have also a reference to the 'people beyond and within the mountains' (*bahir=antaḥśailajāḥ*, XVI.2). Antaḥśaila is the same as Antargiri; Bahiḥśaila is evidently identical with Bahirgiri of the *Mahābhārata* (II.27.3) and Upagiri of Pāṇini (V.4.112), viz., the outlying region of the Tarai. It is the Imaos of the classical writers. Kālidāsa describes it as situated in the north and reaching the eastern and western ocean (*Kumāra-sambhava*, I.1). The *Mārkaṇḍeya-purāṇa* speaks of it as stretching along the north of Bhāratavarṣa like the string of a bow (*Himavān uttareṇ-āsya kārmukasya yathā guṇāḥ*, LVII.59). Ptolemy refers to the Koa (Kabul), Souastos (Swat), Indus, Ganga and other rivers as rising in the Mount Imaos. These statements indicate, as suggested by Pargiter, that originally the name Himavat had a wider denotation so as to include the Sulaiman range. It was considered to be an ideal of strength, and the Sātavāhana king Gautamīputra Sātakarṇi is described as equal to the Himavat, Meru and Mandara mountains in strength.[3]

10. *Kailāśa* (XIV.24), a mountain in the northern division. According to the *Matsya-purāṇa* (CXXI.2), it lies at the back of Himavat (*Himavataḥ pṛṣṭhe*). According to some, it is a spur of the Gangri range; it is the Congrinpoche of the Tibetans, situated about 25 miles north of Mānasa-sarovara beyond the Gangri which is also called Darchin, and to the east of the 'Niti Pass'.[4] It forms the water-shed giving rise to the Indus, Sutlej and Brahmaputra. The Mandasor Inscr. of Kumāragupta and Bandhuvarman describes Kailāśa and Sumeru as the breasts of the earth.[5]

11. *Kiṣkindhā* (XIV.10), a hill as well as the country round it in the south-eastern division. It comprises the hills of Kupal, Mudgal and Raichur. There still extists a small hamlet in the Dharwad district on the south bank of the Tuṅga-

1. *JRAS*, 1870, p. 462, fn. 4.
2. *India as Known to Pāṇini*, p. 39.
3. *SI*, p. 196.
4. *Dσ*, pp. 82-83.
5. *CII*, III, p. 86.

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bhadrā near Ānegundi, three miles from Vijayanagara, which is called Kiṣkindhā as well as Anegundi.[1]

12. *Krauñca* (XIV.24), a mountain in the northern division, has been identified with that part of the Kailāśa mountain on which Mānasa-sarovara is situated.[2]

13. *Kṣurārpaṇa* (XIV.20), a mountain in the western division.

14. *Kusumanaga* (XIV.14) in the southern division.

15. *Mahendra* (XIV.11; XVI.10) is located in the southern division. According to Pargiter, Mahendra comprises "the chain of hills that extends from Orissa and the northern Circars to Gondwana, part of which near Ganjam is still called Mahindra Malei or hills of Mahindra", or "the portion of Eastern Ghats between the Godāvarī and the Mahānadī, and the hills in the south of Berar."[3] But as pointed out by Raychaudhuri, this restriction of Mahendra to the north of the Godāvarī is not always observed by Sanskrit writers and it actually 'embraced the entire chain of hills extending from Ganjam to Tinnevelly'.[4] Kālidāsa especially associates it with Kaliṅga (*Raghu*, VI.54).[5]

16. *Malaya* (XVI.10),[6] in the southern division (XIV.11), signifies the southern portion of the Western Ghats from the Nilgiris to Cape Comorin.[7] It is Ptolemy's Bettigo[8], a name derived from Tamil Podigei or Podigai. It was famous for its sandal which was also called *malaya* or *malayaja*. In the *Mahābhārata* (Droṇa, 23.70-72), it is closely associated with the Pāṇḍyas; a Pāṇḍya ruler is styled *Malaya-dhvaja*.[9]

17. *Mālindya* (XIV.11), in the southern division.

18. *Mālyavān* (XIV.5), in the eastern division. Partgiter[10] identifies it with the curved line of hills close to Kupal, Mudgal

1. *JRAS*, 1894, p. 257; *ASSI*, I, p. 322; *Dey*, pp. 100-101.
2. *Dey*, p. 104.
3. Pargiter, *Mārkaṇḍeya Purāṇa*, p. 284 note.
4. *Antiquities*, pp. 98-9.
5. For some epigraphic references, vide *SI*, p. 196; *CII*, III, pp. 7, 284.
6. Also mentioned in XXVII. 2 of Kern's and V. S. Sastri's ed.
7. Pargiter, *Mārkaṇḍeya Purāṇa*, p. 285 & note.
8. *Ptolemy*, p. 78.
9. For an epigraphic reference cf. *SI*, p. 196, line 2.
10. *JRAS*, 1894, pp. 256-7.

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and Raichur. Dey[1] thinks it is the name of the Karakorum mountain between the Nīla and Niṣadha mountains. But none of these appears to be identical with Varāhamihira's Mālyavat which is placed in the eastern division.

19. *Maṇimān* (XIV.20), in the western division.

20. *Meghavān* (XIV.20), a mountain in the western division.

21. *Mekala* (V.39, 73; XVI.2), a mountain and the people inhabiting it in the eastern division (XIV.7). It is usually identified with the Maikal range in the Gondwana in Madhya Pradesh including the Amarakantak which is the source of the Narmadā. Varāhamihira places it too much in the east.

22. *Meru* (XIV.24), in the northern division. It is the name of both a fabulous mountain, the habitation of gods, supposed to be situated in the centre of Jambūdvīpa, and a portion of the Himalayas. This last seems to be the mountain in question. Sir Monier-Williams[2] thinks that it denotes the highland of Tartary, north of the Himalayas. B. C. Law[3] identifies it with the Rudra Himalaya in Garhwal where the Ganga rises and regards it as identical with the Mount Meros of Arrian. According to some, Meru denotes the Pamir range in Central Asia.

23. *Muñjādri* (XIV.31), in the north-eastern division. Alberuni (I.303) gives the name as Puñjādri.

24. *Padma* (XIV.5), in the eastern division. It is evidently distinct from Sravana Belgola in Mysore which S. Krishnaswamy Aiyangar identifies with Padmagiri.[4]

25. *Pāriyātra* (*v. l.* Pāripātra, V.68; LXVIII.11) is placed in the Middle Country (XIV.4). Varāhamihira refers to the inhabitants of Pāriyātra (*Pāriyātrastha*, VI.10; *Pāriyātrika*, X.15). It has been identified with the western portion of the Vindhya range west of Bhopal including Aravalli mountains in Rajasthan.[5] The name Pāriyātra still survives in the Pathar range lying between the rivers Chambal and Banas.[6] The

1. *Dey*, p. 123.
2. *Sanskrit-English Dictionary*.
3. *Geography of Early Buddhism*, p. 42; *Historical Geography*, p. 111.
4. S. K. Aiyangar, *Ancient India*, p. 209.
5. Pargiter, *Mārkeṇḍeya Purāṇa*, p.286 & note.
6. *CASR*, VI, p. 1; XIV, p. 151.

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earliest inscriptional reference to it occurs in the Nasik cave inscr. of Vāsiṣṭhīputra Puḷumāvi,[1] where it is called Pāricāta. As stated above, according to Vārāhamihira it was the southern limit of Madhyadeśa.

26. *Pheṇagiri* (XIV.18), in the south-western division. Monier-Williams places it near the mouth of the Indus.[2]

27. *Praśastādri* (XIV.20), a hill in the western division.

28. *Raivataka* (XVI.31), a mountain in the south-western division (XIV.19), is the hill opposite Mt. Girnar. Sometimes it is identified with the Girnar mountain itself which is believed to be the birth-place of Neminātha and regarded as one of the five great *tīrthas* of the Jainas. In the Junagadh inscr. of Skandagupta, it is said to be the source of the river Palāśinī.[3]

29. *Riṣyamūka* (XIV.13), in the southern division. According to Fleet, it is a hill on the north of Hampe.[4] Pargiter identifies it with the rangé of hills from Ahmadnagar to beyond Naldrug and Kalyani dividing the rivers Mañjīrā and Bhīmā.[5]

30. *Sahyagiri* (LXVIII.30). In the Purāṇas, it is described as the source of the Godāvarī, Vañjulā or Mañjīrā, Kṛṣṇā, Bhīmā, Tuṅgabhadrā, Suprayogā (perhaps in Nellore) and Kāverī. It has, therefore, been identified with the northern portion of the Western Ghats extending from the river Tāptī down to the Nilgiris.[6] Ptolemy divides it into (1) the northern part called Oroudian (Skr. Vaidūrya), the source of the great rivers of the eastern or Maesolian coast, and (2) the southern part called Adeisathron, the source of Khaberos, i. e. Kāverī.[7] Kālidāsa describes it as the hips of the earth (*Raghu*, IV.52), while in the Alina copper-plate inscr. of the Maitraka ruler Śīlāditya VII it is spoken of as one of the breasts of the earth, the other being the Vindhya mountain.[8]

31. *Śibiragiri* (XIV.6), in the eastern division.

32. *Śrīparvata* (XVI.3). The identification of Śrīparvata

1. *SI*, p. 196, line 2, Cf. *CII*, III, p. 157 (Mandasor Inscr. of Yaśodharman).
2. *Sanskrit-English Dictionary*.
3. *CII*, III, p. 160, line 16. Also cf. *Ibid.*, p. 230.
4. *IA*, VI, p. 85.
5. *JRAS*, 1874, p. 253.
6. *Ibid*, p. 285 and note.
7. *Ptolemy*, pp. 80 f.; 102 ff.
8. *CII*, III, p. 176. Also cf. *SI*, p. 196, line 2.

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with the Nallamalais of the Kurnool District in Andhra Pradesh, extending all along the Krishna in a westerly direction, is settled beyond doubt by a Nagarjunakonda inscr. which states that the lady Bodhisiri built a monastery and an apsidal temple on the Lesser Dhammagiri on Śrīparvata.[1] It is sometimes identified with the Siriṭana of the Nasik cave inscr. of Vāsiṣṭhīputra Puḷumāvi,[2]

33. *Śūrpādri* (XIV.14), in the southern division.

34. *Udayagiri* (XIV.7), which is placed in the eastern division, may be either the mythical mountain of sunrise or the famous Udayagiri hill, 5 miles east of Bhuvaneshwar in Orissa. The latter is a spur of the Assia range and contains some Buddhist and Jaina monuments of an early date.

35. *Vasumān* (XIV.24), a mountain in the northern division.

36. *Vindhya*. The name is at present loosely used to denote the entire chain of mountains along the Narmadā separating north India from the Deccan. Although in Sanskrit literature also it is sometimes applied to the entire chain of hills extending from Gujarat to the Gaya district along both sides of the Narmadā, when distinguished from the Ṛkṣavat or the central part of the chain lying north of the Narmadā, Vindhya denotes its 'eastern part together with the hills standing south of the Narmadā and extending as far as the ocean."[3] Varāhamihira refers to the Vindhya forest (XVI.3), the countries in the neighbourhood of the Vindhya mountain (*Vindhy-ādri-pārśvagā deśāḥ*, XVI.12) and the people living there (XVI.10), and places the people living in the neighbourhood of the Vindhyas (*Vindhy-ānta-vāsinaḥ* XIV.9) in the south-eastern division. He speaks of the Vindhya mountain as one of the breasts of the earth (XLII.35; *YY*, VIII.17), the other being Himavat. The Alina copper-plate inscr. of Śīlāditya VII describes the Vindhya and Sahya ranges as the two breasts of the earth.[4] In another inscription, Vindhya alone is spoken of as forming both

1. *EI*, XX, p. 22, Inscr. No. F; A. H. Longhurst, *The Buddhist Antiquities of Nagarjuna-Konda, MASI*, No. 54, p. 5; T. N. Ramachandran, *Nagarjuna-Konda, MASI*, No. 71, p. 5.

2. *SI*, p. 196, line 2.

3. *Antiquities*, p. 106; cf. Nīlakaṇṭha on *Harivaṁśa*, Viṣṇuparvan, 38.7: *Vindhyasy-ottarataḥ Ṛkṣavato dakṣiṇata ity=arthaḥ*.

4. *CII*, III, p. 184.

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the breasts.[1] Varāhamihira refers to the myth that Vindyha, bent upon obstructing the path of the sun's chariot by its moving peaks, was stemmed by the sage Agastya. He describes it as a resort of the Vidyādharas, as possessing streams inside its caves, and as embraced in secret by the river Revā as if it were a lady overtaken by passion (*Rahasi madanasaktayā Revayā kāntay-ev-opagūḍham*, XII.6). Brāhmaṇas subsisting on water, roots and air are said to inhabit it.

II. *Rivers*

1. *Bhīmarathā* (*v. l.* Bhīmarathyā, XVI.9). Varāhamihira refers to the inhabitants of the western half of the district of the Bhīmarathā (*Bhīmarathāyāś=ca paścim=ārddhasthāḥ*). It is modern Bhīmā, a tributary of the Kriṣṇā. It is called Bhaimarathī in some Cālukya records.[2]

2. *Candrabhāgā* (XVI.26), modern Chenab, the largest of the five streams of the Panjab. It is the Acesines of the classical writers and the Sandabala or Sandabaga of Ptolemy.[3]

3. *Cārudevī* (IX.18). Varāhamihira refers to the inhabitants of the region about the river Cārudevī. Fleet[4] takes it to be a town or country, but Utpala clearly states that it is a river (*Cārudevī nadī tat=taṭa-vāsinaḥ*). It is not identified so far.

4. *Devikā* (XI.35). It is mentioned as a river in the north (*udag=api ca Devikām*). Pargiter has identified it with the Deeg, an affluent of the Ravi on its right bank.[5] According to the *Agnipurāṇa*, it flowed through the Sauvīra country (region round Multan), while the *Viṣṇudharmottara* (I.67.15) speaks of it as flowing through the Madra country. It is mentioned by Pāṇini, and Patañjali testifies to the fame of the *śāli* rice grown on its banks.[6]

5. *Gāmbhīrikā* (XVI.15) is the same as Kālidāsa's Gambhīrā (*Meghadūta*, I.40), a tributary of the Yamunā above

1. *GII*, III p. 185.
2. *IC*, VIII, p. 113; *IA*, XIX, pp. 304, 310; *EI*, VI, p. 5, line 8, v.17.
3. *Ptolemy*, p. 89.
4. *IA*, XXII, p. 176.
5. *Mārkaṇḍeya Purāṇa*, p. 292 & note.
6. Cf. *JUPHS*, 1944, Pt. II, pp. 76-9; Agrawala, *India as Known to Pāṇini*, p. 45.

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the Chambal flowing east from Gangapur through eastern Rajputana[1].

6. *Gaṅgā* (XVI.15). The region between the Gaṅgā and the Yamunā (LXVIII.26) was called Antarvedī (V.65). Along with the Yamunā, it is spoken of as forming a necklace of the earth (XLII.32).

7. *Godāvarī* (XVI.9). It has its source in Brahmagiri, situated on the side of a village called Tryambak, 20 miles from Nasik, and falls into the Bay of Bengal.

8. *Gomatī* (XVI.12).[2] There are several rivers of this name.[3] But most probably the Gumti rising in the Shahjahanpur district and joining the Ganga halfway between Varāṇasī and Ghazipur is intended. The modern city of Lucknow is situated on it. As pointed out by Fleet, the place Gomatīkoṭṭaka mentioned in the Deo-Baranark inscr. must be located in its neighbourhood.[4]

9. *Guluhā* (*v. l.* Guruhā, Garuhā, Gulahā Guruhā, XIV.23). It is placed in the north-western division. According to Kern, it is the Goroigas of the Greeks. Lassen and Law identify the Greek name with the Gaurī which is the same as modern Panjkora, an affluent of the Kabul (Vedic Kubhā). But Utpala seems to take it to mean a people.

10. *Ikṣumatī* (XVI.4), the river now called Ikhan or Kālindī, a tributary of the Gaṅgā, flowing through Kumaun, Rohilkhand and the district of Farrukhabad.[5] The old town of Saṅkāśya was situated on its bank. It is the same as the Oxymagis of Arrian.[6]

11. *Irāvatī* (XVI.26). It is mentioned together with the Vitastā and the Candrabhāgā and is undoubtedly the same as the modern Ravi, the Hydraotes of classical writers.

12. *Kauśikī* (XVI.15). It is either modern Kusi flowing into the Gaṅgā through the district of Purnea in Bihar or the

1. Law, *Rivers of India*, p. 39.

2. This verse is included in Kern's and Sastri's editions, but not in Dvivedi's ed. The absence of Utpala's commentary on it probably indicates its spuriousness.

3. Cf. *Dey*, p. 70.

4. *CII*, III, p. 217; *IA*, XXII, p 178.

5. *Dey*, p. 77.

6. Agrawala, *India as Known to Pāṇini*, pp. 42-3.

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Kusiara of Sylhet (E. Pakistan) flowing through the area known as Pañca-khaṇḍa.[1]

13. *Kāverī* (V.64), a river in the southern division (XIV.13). It rises in the Western Ghats and flowing south-east through Mysore and the district of Coimbatore and Trichinopoly, falls into the Bay of Bengal in Tanjore District, Madras. Ptolemy mentions it as Khaberis rising in Adeisathron, the southern portion of the Western Ghats.[2] Uragapura (modern Uraiyur), ancient capital of the Colas, is situated on its southern bank.

14. *Lauhitya* (XVI.15) is correctly located in the east (XIV.6). It is modern Brahmaputra. An important tributary which meets the Brahmaputra in Sadiya district is even now called Lohit. Kern suggests that probably the stream was known as Lohita, 'Red River', whereas the people in its vicinity or some district near it, were called Lauhitya. He points out that one Ms. of the commentary has actually *Lohito nadaḥ*, while another has *Lauhityo nadaḥ*.[3] It is mentioned as Lauhitya in the *Raghuvaṁśa* (IV.81) and in the Mandasor inscr. of Yaśodharman[4], and as Lohitya in the Aphsad inscr. of Ādityasena.[5]

15. *Mahānadī* (XVI.10). Taking its rise in the Amarkantak range, it flows through Orissa and falls into the Bay of Bengal.

16. *Mahī* (XVI.31). Varāhamihira refers to people born on the bank of the Mahī. Rising in the Pāriyātra mountain, it has a south-western course upto Banswara wherefrom it turns south and passing through Gujarat drains into the Gulf of Cambay.

17. *Mālatī* (XVI.10). It cannot be identified.

18. *Mandākinī* (XVI.10). Cunningham identifies it with the Mandakin or Mandagin, a small affluent of the Paisuni or Paisundi in Bundelkhand near the Citrakūṭa hill.[6] Fleet takes it to denote the Gaṅgā, or an arm of it.[7]

1. *Historical Geography*, pp. 91, 226.
2. *Ptolemy*, pp. 63, 65.
3. *JRAS*, 1871, p. 82, fn. 2.
4. *CII*, III, p. 148.
5. *Ibid*, p. 206.
6. *CASR*, XXI, p. 11.
7. *IA*, XXII, p. 184.

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19. *Narmadā*. It rises in the Amarkantak mountain and drains into the Gulf of Cambay. As we have seen above, it was regarded as the dividing point between Āryāvarta and Dakṣiṇāpatha. Vārahamihira refers to people living on its banks (V.64) as also on its eastern and western halves (XVI. 1, 9). Its other name Revā is also mentioned (XII.6). It is described as embracing the Vindhya mountain in secret like a lady-love her lover.[1]

20. *Nirvindhyā* (XVI.9). It is usually identified with the Nevuz, a tributary of the Chambal between the Betwa and the Kali-Sindh in Malwa. Some identify it with the Kali-Sindh itself'[2] But as Kālidāsa (*Meghadūta*, I.28-9) mentions the Sindhu and the Nirvindhyā separately, the latter's identification with the Nevuz seems more probable.

21. *Pārā* (XVI.10), the Parvati, a tributary of the Chambal rising in Bhopal.[3] The old town of Padmāvati (modern Pawaya) was situated on the confluence of Pāravati and Sindhu.

22. *Payoṣṇī* (XVI.10). There are a number of rivers claiming to be ancient Payoṣṇī.[4] Cunningham identifies it with the Pahoj, a tributary of the Yamunā between the Sindh and Betwa.[5] But as Varāhamihira mentions it along with the Mandākinī, its identification with the above-mentioned Paisuni or Paisundi in Bundelkhand appears to be more probable.

23. *Phalgulukā* (XIV.23). It is placed in the north-western division. Fleet takes it to be a river, while Utpala seems to regard it as the name of a people as will appear from his rendering of the word in nominative plural (*Phalgulukāḥ*).

24. *Rathākhyā* (XVI.15). This is the reading in S. Dvivedi's edition. Kern points out that some manuscripts read Rathasvā, Rathampā and Rathasyā or Rathaspā. Fleet prefers Rathāhvā and compares it with Gajāhva.[6] Rathaspā as a river is mentioned in the *Jaiminīya-Brāhmaṇa* (Caland's ed., extract 204), the *Ṛktantra Prātiśākhya* (*sūtra* 209) and the *gaṇa-pāṭha* to Pāṇini VI.1.157. In the *Mahābhārata* (I.169.20-21),

1. The idea of rivers being looked upon as ladies is met with in Mandasor inscription of Kumāragupta and Bandhuvarman, of *CII, III*, pp. 81-2, text lines 7-8.
2. *Dey*, p. 141.
3. Pargiter, *Mārkaṇḍeya Purāṇa*, p. 295 & note; *CASR*, II. p. 308.
4. Cf. *Dey*, p. 156.
5. *CASR*, VII.
6. *IA*, 1893, p. 188.

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it is described as one of the seven holy streams between the Sarasvatī and the Gaṇḍakī. Dr. V. S. Agrawala[1] identifies it with the Rhodopha of Greek writers,[2] which he thinks, is the same as the modern Ramganga. But as Rhodopha is expressly described as a town, the identification of the Rathaspā with Rhoopha does not appear to be very probable. It cannot be satisfactorily identified.

25. *Sarasvatī*. Varāhamihira mentions the Sārasvatas, people living on the banks of the Sarasvatī (XVI.21), whom he places in the Middle Country (XIV.2). They are associated with the Yāmunas who are placed partly in the Middle Country and partly in the northern division. We have also a reference to the place where the stream loses itself, i. e. the sands of Patiala (*Sarasvatī naṣṭā yasmin deśe*, XVI,30.) In the *Ṛgveda* (VI.61.2, 8; VII.96.2), the Sarasvatī is described as a mighty river flowing into the sea. Manu (II.17) speaks of the stretch of land between the rivers Sarasvatī and Dṛṣadvatī as the holiest land made by gods. In place of that mighty river, we have now an insignificant stream called Sarsuti, which, rising in the hills of Sirmur in the Sevaliks, emerges into the plains at Ad-Badri in Ambala. It disappears in the sand near the village of Chalaur and reappears at Bhavanipur. It again disappears at Balchhappar and reappears at Bara Khera. At the Village of Urnai near Pehoa, it is fed by the Mārkaṇḍa and the joint stream still called Sarasvatī joins the Ghaggar which evidently formed the lower part of the Sarasvatī[3]. Some have identified it with Ghaggar itself,[4] with the Helmand in Afghanistan[5], and with Arghandau in Arachosia.[6] But as Varāhamihira places it in Madhyadeśa, he seems to have the stream of Sarsuti in view.[7]

26. *Sarayū* (V.65; XVI.15), modern Ghagra or Gogra, a tributary of the Gaṅgā, on whose bank the town of Ayodhyā is situated. Utpala (on V.65) describes it as an eastern river

1. *India as Known to Pāṇini*, pp. 45-46.
2. Mc Crindle, *Megasthenes and Arrian*, p. 130.
3. *Dey*, p. 180.
4. *JRAS*, 1893, p. 51.
5. Ragozin, *Vedic India*.
6. *Vedic Index*, II, p. 437.
7. For a description of the modern Sarasvati, see *CASR*, XIV, pp. 87-90.

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(*pūrva-nadī*), probably referring to its course near Chapra where it joins the Gaṅgā.

27. *Śatadrū* (XVI.20), the Hesydrus of the classical writers, is modern Sutlej, the easternmost stream of the Panjab.

28. *Sindhu* (XVI.10, 15). Varāhamihira locates the Sindhu (Indus) in the south-western division (XIV.19) and refers to its eastern portion (*Sindhu-nada-pūrvabhāga*, XVI.20) and banks (V.66, 80). The tract of land lying north to south between it and the Jhelum was also known by the name Sindhu or Saindhava to which we have numerous references. It may also be noted that two rivers bearing the name Sindhu flow in the Malwa region.

29. *Śiprā* (XVI.9), still known by this name, is a tributary of the Chambal into which it falls a little below Sitamau. The city of Ujjain is situated on its bank.

30. *Śoṇa* (V.65; XVI.1), modern Sone, rising in the Amarkantak range and draining itself into the Gaṅgā near Patna. Megasthenes[1] calls it Erannaboas (a Greek corruption of Sanskrit Hiraṇyavāha) on whose junction with the Gaṅgā was situated Palimbothra (Pāṭaliputra), the celebrated Maurya capital.

31. *Tāmraparṇī*. Varāhamihira locates it in the south (XIV.16) and speaks of its pearl-fisheries (LXXX.2, 3). Even today it is known by this name. The united stream of the Tāmraparṇi and Chittar in Tinnevelly also bears this name. Both of these streams have their source at the Agastikūṭa mountain.[2] The port of Kolkhoi (Korkai) was situated on the mouth of this river,[3] but now it is five miles inland.

32. *Tāpī* (XVI.12),[4] modern Tāptī. It rises in the Satpura hills and empties itself into the Arabian Sea.

33. *Vedasmṛtī* (XVI.31). It has been identified with the Besula in Malwa. In the Bhīṣma-parvan (9.17) of the *Mahābhārata*, it is called Vedasmṛtā.

34. *Veṇā* (XVI.9), in the southern division (XIV.12), is modern Wainganga, a tributary of the Godāvarī. Varāha-

1. Mc Crindle, *Megasthenese and Arrian*, p. 67.
2. *ASSI*, I, p. 330.
3. *Ptolemy*, p. 57.
4. This verse is found in Kern's and Sastri's editions, but not in Dvivedi's. As it is not commented upon by Utpala, it appears to be spurious.

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mihira refers to its banks (IV.26), which were celebrated for diamond industry (LXXIX.6).

35. *Veṇumatī* (XIV.23). It is placed in the north-western division. Alberuni (I, 302) explains it as Tirmidh.

36. *Vetravatī* (XVI.9), modern Betwa, a tributary of the Yamunā.

37. *Vipāśā* (XVI.20), Beas, one of the five rivers of the Panjab. According to Yāska (*Nirukta*, III.9.3.27), it was also known as Ārjīkīyā in the *Ṛgveda* (VIII.3.6.).

38. *Vitastā* (XVI.26), the Hydaspes of the Greek writers, is the Jhelum, one of the five streams of the Panjab.

39. *Yamunā*. Varāhamihira refers to people living on the banks of the Yamunā (V.37) and to its southern bank (XVI.2). He locates the people of the Yamunā region (*Yāmunas*) partly in Madhyadeśa (XIV.2) and partly in the northern division (XIV.25).

III. *Forests*

1. *Daṇḍaka* (XVI.11). Varāhamihira locates Daṇḍakāvana in the southern division (XIV.16) and speaks of its ruler (*Daṇḍak-ādhipati*. XI.56). According to the *Rāmāyaṇa* (Uttarakāṇḍa, LXXIX.18-20), Daṇḍakāraṇya comprised the territory between the Vindhya and Śaivala mountains including Vidarbha, and extended upto Janasthāna on the Godāvarī according to Bhavabhūti's *Uttararāmacarita*.[1] The inclusion of Vidarbha within Daṇḍaka is also suggested by Kauṭilya who says that the king of Daṇḍaka who met his doom in consequence of his attempt on a Brāhmāṇa girl was a Bhoja.[2] In view of this, Pargiter's view that Daṇḍaka comprised all the forests from Bundelkhand to the river Krishna[3] needs substantial modification.

2. *Dharmāraṇya* (XIV.3) is placed in the Middle Country. The *Mahābhārata* (III.82.46) informs us that Kaṇvāśrama (Kansawa near Kota) was called Dharmāraṇya.[4]

3. *Mahāṭavi* (XIV.13), a great forest in the southern

1. Act II, pp. 24-26.
2. *Arthaśāstra*, p. 11.
3. *JRAS*, 1894, p. 943.
4. For other places called Dharmāraṇya, see *Dcr*, pp. 53-7.

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division. It may be the same as Mahākāntāra, a country in Dakṣiṇāpatha whose king was defeated by Samudragupta.[1]

4. *Naimiṣa.* Varāhamihira refers to the lord of the Naimiṣa forest (*Naimiṣ-ādhipati,* XI.60). It is Nimkharavana or Nimsar near the Nimsar Rly. Station, 20 miles from Sitapur and 45 miles to the north-west of Lucknow. It is situated on the left bank of the Gumti.

5. *Nṛsiṁhavana* (XIV.22). It is placed in the north-western division. Kern splits it into Nṛsiṁha and Vana.[2] Alberuni (I.302) takes it to denote 'people with lion-faces,' which is obviously incorrect.

6. *Puṣkara* (V.68; XVI.30) or *Puṣkarāraṇya* (XI.35) is represented by Pokhar, six miles from Ajmer. It is a famous place of pilgrimage frequented by pilgrims.

7. *Vanarājya* (XIV.30), a forest-kingdom in the north-eastern division.

8. *Venarāṣṭra* (XIV.29), a forest territory, in the north-eastern division.

9. *Vanaugha* (*v. l.* Vanauka), 'a collection of forests', in the western division (XIV. 20.)

10. *Vasuvana* (*v. l.* Vasudhana, XIV.31), a forest in the north-eastern division.

We get references to some forest kingdoms in epigraphic records. Thus the Gupta emperor Samudragupta claims to have compelled the kings of all the forest-kingdoms (*sarvāṭa-vikarāja*) to render service to him. Mahārāja Saṅkṣobha is described as the ruler of eighteen forest kingdoms.[3]

IV. *Oceans*

We have so far noticed physical features of the interior of India. Varāhamihira also refers to Yāmyodadhi (southern ocean, XIV.15) in the southern division, and Mahārṇava (the great ocean, XIV.19) in the south-western division, both undoubtedly referring to the Indian ocean, and to Pūrva-sāgara (V.65), which is no doubt the same as the Bay of Bengal. There is also a reference to the mythical milk-ocean called Kṣīroda placed in the eastern division (XIV.6). The ocean is described as the girdle of the earth.

1. *CII,* III, p. 7.
2. *JRAS,* 1871, p. 85, fn. 4.
3. *CII,* III, pp. 13, 116.

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III

PEOPLES AND COUNTRIES

1. *Ābhīras* (V.38, 42; IX.19; XVI.30). The Ābhīras are placed in the southern (XIV.12) and south-western divisions (XIV.18). They probably represent a foreign people, who immigrated into India from some part of eastern Iran in or before the second century B. C.[1] The *Mahābhārata* (Śalya-parvan, 37.1-2) associates them with the Śūdras and speaks of their republican settlement on the Sindhu and the Sarasvatī (Sabhāparvan, 32.9-10). The Aberia (country of the Ābhīras) of the author of the *Periplus* comprised, according to Schoff, southern part of Gujarat including Surat.[2] McCrindle places Ptolemy's Aberia 'to the east of the river Indus, above the place where it bifurcates to form the delta.[3] In the Mausala-parvan (7.47-63) of the *Mahābhārata*, we find the Ābhīras living near Pañcanada (Panjab), where they attacked Arjuna when he was carrying the women of the Vṛṣṇis after the extinction of their male members. The route of their migration to Koṅkaṇa and Aparānta, where they are found in later times, lay through the region between Jhansi and Bhilsa, which is consequently known as Ahirwar. In the second and third centuries of the Christian era, we find them in important political position in Gujarat and Nasik region. The Gunda (Kathiawad) inscr. (A. D. 180) belonging to the reign of Rudrasiṁha I records the charities of an Ābhīra general, Rudrabhūti, son of Bāpaka.[4] Iśvaradatta, who issued silver coins of the Satrapal style with the title *mahākṣatrapa*, is supposed to be an Ābhīra. According to Rapson, these coins belong to some date between A. D. 236 and 239,[5] while D. R. Bhandarkar places them between A. D. 188 and 190.[6] A Nasik cave inscription was issued in the ninth

1. The Ābhīras are referred to by Patañjali (*Māhābhaṣya*, on 1-2-72, Nirnaya-Sagar Edition, Vol. II, p. 108), and it is, therefore, possible, as suggested by W. W. Tarn, (*Greeks in Bactria and India*, p. 712), that they entered into India during the period of confusian after Alexander's invasion.
2. *Periplus*, pp. 39, 175.
3. *Ptolemy*, p. 140.
4. *Luders' List No.* 963.
5. Rapson, *BMC, Āndhras and Kṣatrapas*, pp. cxxxiv-cxxxvi.
6. *ASI, AR*, 1913-14, pp. 228-231.

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regnal year of king Māḍharīputra Iśvarasena, son of Ābhīra Śivadatta. He appears to have been in possession of a large territory comprising Koṅkaṇa, Gujarat and Maharashtra.[1] Dr. V. V. Mirashi has shown that the *mahārājas* Svāmidāsa, Bhūluṇḍa, and Rudradāsa were ruling over Khandesh as feudatories of the Ābhīras in the years 67, 107 and 117 respectively of the Kalacuri-Cedi era of A. D. 248-49.[2] Thus, the location of the Ābhīras in the south and south-west is quite plausible. Their inclusion among the north Indian tribes frightened by Samudragupta shows that they continued to enjoy a significant position in the north down to the fourth century A. D.[3]

2. *Abhisāra* (XXXII.19), a country in the north-eastern division (XIV.29), the Abisares of the Greeks. Dr. Stein identifies the kingdom of Abhisāra with the tract of the lower and middle hills between the Jhelum and Chenab including the state of Rājapura (Rajauri) in Kashmir.[4] Varāhamihira places it too much to the east.

3. *Ādarśa* (XIV.25), a country and its people in the northern division. According to the Dharmasūtras, Ādarśa is the place where the Sarasvatī disappears. It was regarded as the western boundary of Āryāvarta. Elsewhere, Varāhamihira himself locates the place of the disappearance of the Sarasvatī in the western division (*Naṣṭā yaśmin deśe Sarasvatī paścimo deśaḥ*, XVI.30). S. N. Majumdar Sastri suggests that it lay not far from the ancient kingdoms of Srughna and Trigarta (Kangra).[5]

4. *Agnīdhra* (*v. l.* Agrīvya or Agnītya, XIV.25), a people in the northern divison. Alberuni (I, 302) gives the name as Agnītya.

5. *Ākara* (XIV.12), a country in the southern division. Kern translates it as 'the mines' and suggests that it denotes modern Khandesh.[6] Ākara and Avanti are closely associated in inscriptions[7] and in the Junagadh Inscr. of Rudradāman I,

1. *CII*, IV, p. xxxiv.
2. *ABORI*, XXV, p. 159; *IHQ*, XXI, p. 79.
3. *CII*, III, p. 8, text line 22.
4. Stein, *Rājataraṅgiṇi*, I, p. 32; II, p. 432, Cf. Mc Crindle, *Invasion of India by Alexander the Great*, p. 69, fn. 3; *JASB*, 1852, p. 234.
5. *CAGI*, p. xli, note, cf. SBE, XIV, p. 2.
6. *IA*, XXII, p. 172. The statement of Dey (p. 3) that *BS* mentions *Ākarāvantika* is incorrect.
7. *SI*, pp. 172, 196.

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we find the phrase *Pūrv-āpar-Ākar-Āvanti*. Ākara, thus, denotes eastern Malwa. The name is still preserved in Agar, 35 miles northeast of Ujjain.

6. *Ambarāvata* (XIV.27), a people in the northern division. The text gives Ambara which Utpala paraphrases as Ambarāvata. The analogy of the names like Puṣkalāvatī suggests that Ambarāvatī was probably the name of a city, the inhabitants of which were called Ambarāvata.

7. *Ambaṣṭha* (IX.19; XVI.21), a people in the eastern (XIV.7) and south-western divisons (XIV.17).[1] In the time of Alexander we find the Ambaṣṭhas, Abastanoi of Alexander's historians, living in northern part of Sind as also on the lower Acesines (Chenab).[2] Ptolemy speaks of the Ambautai as settled in the east of the country of the Paropanisadai.[3] In the Sabhāparvan of the *Mahābhārata* (32.7), they are associated with the north-western tribes like the Śibis, Kṣudrakas and Mālavas. In later times some branches of the Ambaṣṭhas appear to have migrated to the south and eat. Ptolemy refers to the Ambastai as living in the Vindhyan region together with the Bhils and Gonds.[4] Even to the present day, Ambaṣṭha Kāyasthas are to be found in Bihar and Bengal.[5]

8. *Ānarta* (V.80; XVI.30), a country in the south-western division (XIV.17). In XIV.33, it is alluded to as the representative country of that divison. The Junagadh Inscr. of Rudradāman alludes to it as a country included in his kingdom.[6] The *Mahābhārata* (II.14-50) mentions Kuśasthalī as another name for Dvārakā situated in Ānarta.[7] Ānarta, thus, denotes northern Gujarat with its capital at Dvārakā.

9. *Andhra*. Varāhamihira refers to Andhra as a country (XVI.11 XVII.25), mentions its king (*Andhra-pati*, XI.59) and places it in the south-eastern division (XIV.8). The Andhras as a people are mentioned in the *Aitareya Brāhmaṇa* (VII.18), R. E. XIII of Aśoka[8] and several other works. Ac-

1. Cf. *Agni-purāṇa*, LV.16.
2. Mc Crindle, *Invasion of India*, p. 155.
3. *Ptolemy*, pp. 311-12.
4. *Ibid*, pp. 159-61.
5. Cf. *PHAI*, p. 256, fn. 4.
6. *SI*, p. 172.
7. Cf. Sorensen, *Dictionary of Proper names in the Mahābhārata*, p. 433.
8. *SI*, p. 37.

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cording to some, they belonged to Dravidian stock and lived in the deltas of the Godavari and the Krishna,[1] while according to others, they were originally a Vindhyan people, who later on extended to the Godavari and Krishna valleys.[2] The Jātakas mention a town named Andhapura on the river Telavāha, which is sometimes identified with modern Bezwada.[3]

10. *Aṅga* (V.72; IX.10; X.14; XI.56; XVII.26; XXXII. 15). The Aṅgas are first mentioned in the *Atharvaveda* (V.22.14) and in the *Aitareya Brāhmaṇa* (VIII.22). In Buddha's time it was one of the sixteen *mahājanapadas* or great states. Aṅga comprised the districts of Bhagalpur and Monghyr with Campā as its capital. A legend about the origin of this name is recorded in the *Rāmāyaṇa* (I.23, 13-14). It is stated that in consequence of being burnt by Śiva, Kāma, the god of love, came to be known as Anaṅga (bodyless) and the country where he abandoned his body is called Aṅga. According to some other works, Aṅga was so called after an eponymous prince.

11. *Antardvipin* (XIV.25), a country in the northern division.

12. *Anuviddha* (*v. l.* Anuviśva, XIV.31), a people or country in the north-eastern division.

13. *Arava* (XIV.17), a people or country in the south-western division. Arava is a Telugu word for a Tamilian. Tamil Aravamu.

14. *Arimeda* (XIV.2), a people in the Middle Country.

15. *Ārjunāyana* (IV.25; XI.59; XVI.21; XVII.19), a people in the northern division (XIV.25). Historians try to connect them with the Pāṇḍava hero Arjuna or the Haihaya king of that name. The inclusion of the Ārjunāyanas among the frontier tribes which submitted to Samudragupta[4] has led Fleet to connect them with the Kalacuris who trace their descent from Kārtavīrya Arjuna.[5] This suggestion lacks support. We know from the *Kāśikā* (on Pāṇini, II.4.66, *Bahv=aca iñaḥ prācya-Bharateṣu*) that the Ārjunāyanas claimed descent from the Bhārata (Pāṇḍava) hero Arjuna. Moreover, the Kalacuris are known to have ruled in Central India and Deccan, not in

1. *IA*, 1913, pp. 276-8.
2. *IA*, 1918, p. 71; *PHAI*, p. 92.
3. *Ibid*; *Mehta*, p. 370.
4. *CII*, III, p. 8, line 22.
5. *Ibid*, Introd., p. 10.

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the north. The find-spots of the coins of the Ārjunāyana republic (cir. 1st century B. C.) indicate that their country, which was known as Ārjunāyanaka,[1] lay within the triangle of Delhi-Jaipur-Agra.[2] The Ārjunāyanas seem to have grown powerful after the decline of the Indo-Greeks in the first century B.C., but were soon subdued by the Kuśāṇas after whose decline they regained their independence. Though they had again to submit to Samudragupta in the fourth century, numerous references in our work indicate that they continued to hold their own down to the sixth century A. D.

16. *Asika* (XI.56). Varāhamihira refers to the lord of the Asikas (*Asik-eśa*). In the present state of our knowledge, it is difficult to locate the Asika country definitely. The reading Asika-nagara in line 4 of the Hathigumpha inscr. of Khāravela is doubtful. K. P. Jayaswal and R. D. Banerji prefer Mūṣika-nagara.[3] The inscr. tells us that disregarding Śātakarṇi, Khāravela sent a large army to the west (of Kaliṅga) and with its aid, having reached the Kaṇhaveṇā, struck terror into the hearts of the people (or city) of Mūṣika-or Asika-nagara. The Kṛṣṇaveṇā is usually identified with the river Kṛṣṇā. Those who read Asika, regard it as a corruption of Sanskrit Ṛṣika whom they place between the Kṛṣṇā and the Godavari.[4] But as pointed out by Dr. Mirashi, the Kṛṣṇā flows south, not west, of Kaliṅga; the Kṛṣṇaveṇā should, therefore, be identified with the Kanhan, a tributary of the Wainganga, which flows about 10 miles north of Nagpur.[5] Thus, Asikas or Mūṣikas cannot be placed on the Krishna. Besides, Varāhamihira seems to distinguish the Asikas (XI.56) from the Ṛṣikas (XIV.15).

17. *Aśmaka* (V.39, 73, 74, 79; IX.18, 27; XVI.11; XXXII. 15), a country and its people in the north-western division (XIV.22). Mention is made of the lord of the Aśmakas (*Aśmakapa* XI.54; *-nātha* XI.55; *-narendra* XVII.15). In Pali and Sanskrit works, Assaka or Aśmaka is usually regarded as a southern country on the Godāvari with its metropolis at Potali

1. Ārjunāyanas are included in the Rājanyādi-gaṇa to Pāṇini, IV. 2.53.
2. *CCAI*, p. lxxxii.
3. *EI*, XX, p. 79, line 4.
4. Barua, *IHQ*, 1938, p. 263; *SI*, p. 198, fn. 3.
5. *JNSI*, II, p. 93. This was first suggested by Pargiter, vide *JRAS*, 1894, p. 244.

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or Potana or Paudanya. Bhaṭṭasvāmin, a commentator of the *Arthaśāstra*, identifies it with Maharashtra. T. W. Rhys Davids, however, thinks that the Aśmaka country was originally situated immediately to the north-west of Avanti and that the settlement on the Godāvarī was a later colony.[1] Neither of these countries can be our Aśmaka for Varāhamihira places it in the north-west. Therefore, as suggested by Kern[2], it is more plausible to identify our Aśmaka with the Assakenoi of the Greek writers. In Alexander's time, the Assakenoi people were ruled over by Assakenos whose territory comprised part of Swat and Buner and extended eastwards as far as the Indus and had its capital at the town of Massaga (Skr. Maśakāvatī).[3]

18. *Aśvamukha* (XVI.34), literally meaning 'horse-faced people'. Aśvavadanas (XVI.6) and Turaṅgānanas (XIV.25) meaning the same thing are located in the eastern and northern divisions respectively. It is not possible to decide whether the semi-divine beings called Kinnaras are intended or a people with faces bearing certain resemblance to that of a horse. The author of the *Periplus* mentions the Horse-faces whom Schoff identifies with the Tibeto-Burman races on the eastern frontier of India.[4]

19. *Aśvattha* (XIV.3), a people in the Madhyadeśa.

20. *Avagāṇa* (XI.61; XVI.37) seems to be the same as Yuan Chwang's O-po-kien or Avakan which Cunningham is inclined to identify with the name of Afghan.[5]

21. *Avanti* (V.40, 73; IX.17, 18, 21; XI.35) denotes western Malwa, its people and the town of Ujjayinī. Varāhamihira refers to the *janapadas* of Avanti (*Āvantikā janapadāḥ*, V.64) and its king (*Āvanta*, XIV.33). Although Avanti is not named in the enumeration of the countries in the southern division, its king is described as representing this very division. As we have seen above, Varāhamihira was himself an inhabitant of Avanti. In the Junagadh inscr. of Rudradāman I[6] and the Nasik cave inscr. of Vāsiṣṭhīputra Puḷumāvi it is associated with Ākara. The Junagadh inscr. in particular describes Ākara

1. Rhys Davids, *Buddhist India*, p. 14.
2. *JRAS*, 1871, p. 85.
3. *Cambridge History of India*, I, pp. 315-6.
4. *Periplus*, 47, 254, 278.
5. *CAGI*, pp. 100-101.
6. *SI*, p. 172, line 11.

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and Avanti as the eastern and the western. Thus, Avanti seems to denote western Malwa.

22. *Āvartaka* (XIV.12), a people in the southern division.[1]

23. *Badara* (XIV.19), a country or people in the south-western division. Badaras were probably the people of Yuan Chwang's O-cha-li or Badarī (or Vadarī) which Cunningham identifies with modern Eder. In the time of the Chinese pilgrim Badarī was a large kingdom bounded by Ajmer and Ranthambhor on the north, by the Loni and the Chambal on the east and west and the Malwa frontier on the south, and extending from the mouth of the river Banas in the Ran of Cutch to the Chambal near Mandasor.[2] The city of Vadarī mentioned in a Basantgarh inscr.[3] is, according to Cunningham, the same as Eder.

24. *Bāhlika* (V.37; XVIII.6), or *Bāhlīka* (X.70 XVI.1; XVII.13, 25; XXXII.15), or *Vāhlika* (IX.10), or *Vāhlīka* (V.80), a country and its people. It is modern Balkh or Bactria in the extreme north of Afghaṇistan. In the Meharauli iron pillar inscr., king Candra (probably Candragupta II) is said to have crossed the seven mouths of the Indus before reducing the Vāhlikas[4], showing that the latter lived beyond the Indus. J. Pryzluski thinks that Bāhlika was an Iranian settlement of the Madras.[5] Bāhlikas are sometimes confused with the Vāhīkas[6], who, according to the *Mahābhārata* (VIII.44.6-7), lived in the region watered by the five rivers of the Panjab and the Indus. The *Rāmāyaṇa* (II.68.18-9), however, places the Bāhlīkas on the river Beas. It is not improbable, therefore, that the Vāhīkas were a branch of the same stock as the Bāhlīkas or that a branch of the Bāhlīkas lived in the Panjab also.[7]

25. *Barbara* (V.42), a people in the south-west division (XIV.18). The Barbaras must be located in the region about the port of Barbaricum situated on the middle mouth of the

1. This is not mentioned by Fleet.
2. *CAGI*, pp. 565-8.
3. *JASB*, X, p. 668.
4. *CIII*, III, p. 141, v. 1.
5. An Ancient People of the Punjab, the Udumbaras, *Indian Studies : Past and Present*, Vol. I, No. 4, pp. 729 ff.
6. Cf. *Mahābhārata*, I.124-21, Karṇaparva Chs. 43 ff.; VIII. 45.23; V.39.79.
7. For different views vide Padma Mishra, Vāhīka and Bāhlīka, *IC*, VIII (1941-42), pp. 85-89; K.D. Bajpai, Identification of Vaṅga and Bāhlika in Mehrauli Pillar Inscription, *Mirashi Felicitation Volume*, pp. 355-361.

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Indus as described by the author of the *Periplus*[1], or near the town of Barbarei, forming one of the islands of the Indus delta, mentioned by Ptolemy.[2] It has been suggested that Barbaricum of the *Periplus* is the same as Barbarika mentioned in the *Dhanvantarīya Nighaṇṭu*.[3] The *Mārkaṇḍeya-purāṇa* (LVII.39) actually places the Barbara country in the Sindhu valley. The statement of B. C. Law that the '*Bṛhatsaṁhitā* refers to them (Barbaras) as north or north-west tribes'[4] is incorrect.

26. *Bhadra*, a people placed in the Middle country (XIV.2) and the eastern (XIV.7) and southern divisions (XIV.16). Kern renders Bhadra by 'Blessed' and thinks that the Bhadras are probably the same as the Bhadrāśvas mentioned below.[5] The presence of the Bhadras in eastern India is vouched for by the Khalimpur copper-plate inscr. which informs us that Gopāla, the father of Dharmapāla, married Deddādevī, the daughter of a Bhadra chief (*Bhadr-ātmajā*).[6]

27. *Bhadrāśva* (IX.11), a fabulous people whose origin can be traced to the 'blessed horses' of the sun described in the *Ṛgveda* (I.115.2).[7]

28. *Bhalla* (*v. l.* Bhilla), a people in the north-east division (XIV.30).

29. *Bharatas* (XVI.20). In the *Ṛgveda*, the Bharatas are brought in special connection with the rivers Sarasvatī, Āpayā and Dṛṣadvatī, showing that they lived in the Madhyadeśa of later ages.[8] In the Brāhmaṇa period, they merged in the Kuru-Pāñcāla people. Though the Bharatas lost their tribal entity, their fame lingered till late times.

30. *Bhṛṅgi* (IV.22), a people who cannot be properly located.[9]

30 a. *Campa* (XVI.3), perhaps Chamba in Punjab.

31. *Cañcūka* (XIV.18, *v. l.* Campuka), a people in the

1. *Periplus*, pp. 37, 39.
2. *Ptolemy*, pp. 146, 148.
3. *IC*, I, p. 389.
4. *Historical Geography*, p. 70.
5. *JRAS*, 1871, p. 82, fn. 3.
6. *EI*, IV, pp. 245, 248, line 9.
7. *JRAS*, 1871, p. 57, fn. 2.
8. *Vedic Index*, I, pp. 95-6.
9. Not mentioned by Fleet.

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south-west division. They may be identified with the Chenchus, a hilly tribe, living in the Srīśailam area of Andhra Pradesh. The physical features of the present day Chenchus very much resemble those of the human figures in Amaravatī and Nagarjunakonda art.

32. *Carmadvīpa* (XIV.9), literally meaning 'skin-island', in the south-east division.[1]

33. *Carmaraṅga* (XIV.23), a people in the north-west division.

34. *Cedi* (XVI.3; XXXII.22), a country the inhabitants of which (*Cedika*, XIV.8) are placed in the south-east division. The word *Caidya*, 'Cedi king', is found in XI.59. Mention is made of the famous Cedi king (*Cedipa*) Vasu Uparicara who is said to have started the festival Indramaha (XLII.8) He is usually considered to be identical with Kasu Caidya who is so hyperbolically extolled in the Dānastutis of the *Ṛgveda* (VIII.5.37-39).[2] The Cedi country roughly corresponds to modern Baghelkhand and adjoining regions. Tripurī, the capital of the Kalacuris, is also mentioned (XIV.9).

35. *Ceryāryaka* (XIV.15), a people in the southern division. Utpala takes it to be one word, but it may be split up into Cerya and Āryaka[3]. The former will then denote the inhabitants of Kerala which comprises Malabar, Cochin and Travancore.

36. *Cīna* (V.77, 78, 80; X.7, 11; XI.61; XVI.1, 37), a people in the north-east division (XIV.30). In the Pali *Sāsanavaṁsa*, Himavantapadesa is stated to be the Cīnaraṭṭha. The name Cīna also occurs in the Nagarjunakonda inscr. of the Ikṣvāku king Vīrapuruṣadatta. B. C. Law places it in the Himalayas beyond Cilāta or Kirāta.[4] Kern (on V.77, 78, 80), however, renders it by 'the Chinese'.

37. *Cipiṭanāsika* (XIV.26), a 'flat-nosed people' in the northern division. This seems to refer to some people with characteristic Mangolian features such as the flat nose. The *Periplus*, it is interesting to note, mentions a people called Cirrhadae with flattened nose, who, according to Schoff, were

1. It may be the same as Kārdaraṅga, also called Karmaraṅga, an island of Indonesia.
2. *Vedic Index*, I, p. 144.
3. Raychavdhuri (*PHAI*, p. 485, fn. 5) thinks that Ariake of the *Periplus* may be the same as our Āryaka.
4. *Historical Geography*, p. 73.

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a Bhoṭa tribe, whose descendants, still called Kirāta, live in the Morung, west of Sikkim.[1] Pliny (VII.2) also refers to the Scyrites who 'have merely holes in their heads instead of nostrils, and flexible feet like the body of a serpent.' People without nostrils are also mentioned by Megasthenes who is reproved by Strabo (XV.1.57) for deviating into fables.

38. *Cīranivāsin* (XIV.31), literally 'wearers of bark', a people in the north-east division.

39. *Cola* (V.40; XI.61; XVI.10, 37), a country and its people in the southern division (XIV.13). Stretching along the eastern coast from the river Pennar to the Vellar and bounded on the west by Coorg, the Cola country comprised the Trichinopoly and Tanjore districts and a part of the Pudukottai state.[2] It was drained by the river Kāverī. In the Aihole inscr. of Pulakeśin II,[3] the Kāverī is especially associated with the Cola country. Ptolemy refers to the Colas as Soringae with their capital at Orthoura, Sanskrit Uragapura, modern Uraiyur on the southern bank of the Kāveri.[4]

40. *Ḍāmara* (*v. l.* Dāmara XIV.30), a people in the north-east division. Wilson identified them with a fierce intractable tribe inhabiting the mountains to the north of Kashmir.[5] Stein, however, shows that the word Ḍāmara is used as a common noun meaning feudal land-holder.[6]

41. *Daṇḍa-piṅgalaka* (XIV.27), a people in the northern division.

42. *Danturaka* (XIV.6), a people in the eastern division. Alberuni (I.301) takes Dantura to mean 'people with long teeth.' Dey suggests that it is a corruption of Dantapura, the ancient capital of Kaliṅga.[7] This suggestion is untenable, for, while Danturaka is placed in the eastern divison, Kaliṅga is assigned to the south-east division (XIV.8).

43. *Darada* (V.42, 79; XIII.9), a people and country in the north-east division (XIV.29). It is Dardistan north of

1. *Periplus*, pp. 47, 253-4, 278.
2. K. A. N. Sastri, *The Colas*, I, p. 22.
3. *EI*, VI, p. 6, line 14.
4. *Ptolemy*, pp. 64-5, 185-6.
5. Wilson, *Essays*, pp. 51, 70.
6. Stein, *Rājataraṅgiṇī*, II, pp. 304 ff.
7. *Dey*, p. 53.

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Kashmir on the upper Indus. Sir Aurel Stein identifies its capital Daratpurī with modern Gurez.[1] The seats of the Daradas, which have remained unchanged since the time of Herodotus, extend 'from Chitral and Yasin across the Indus region of Gilgit, Chilas and Bunji to the Kishanganga valley in the immediate north of Kashmir.'[2]

44. *Dārva* (XIV.30), a country in the north-east division. In literature Dārva is closely associated with Abhisāra and these together roughly comprised the Punch and Naushera region between the Jhelum and the Chenab. Its location in the north-east is evidently incorrect.

45. *Dāsameya* (XIV.28), a people in the northern division.

46. *Daśārṇa* (V.40; X.15; XXXII.11), a country, the inhabitants whereof (*Dāśārṇa*, XVI.25) are placed in the south-east division (XIV.10). It denotes the region east of Vidiśā watered by the river Daśārṇā, modern Dhasan.

47. *Dāśeraka* (*v. l.* Dāseraka, V. 67), a people and country in the northern division (XIV.26). Dey suggests to identify it with Malwa,[3] while D. C. Sircar regards it as another name for Maru, i.e. Marwar region in Rajputana.[4] That our author does not intend any of these two countries by Dāśeraka is evident from the fact that he locates Ākara and Avanti forming eastern and western Malwa in the southern division and Maru or Marwar region in the Middle Country, whereas Dāśeraka is placed in the northern division.

48. *Dīrghagrīva* (XVI.23), literally meaning 'long-necked', a people in the north-west division.

49. *Dīrghakeśa* (XIV.23), literally 'long-haired', a people in the north-west division.

50. *Dīrghāsya* (XIV.23), literally 'long-mouthed', a people in the north-west division.

51. *Diviṣṭha* (XIV.31), literally 'inhabitants of the sky', a people in the north-east division. Khasthas (XIV.22), meaning the same, are also placed in the north-west division, while Khacaras (people roaming in the sky, XIV.28) are assigned to the northern division. They appear to be a fabulous people.

1. *Rājataraṅgiṇī*, II, p. 435.
2. *Rājataraṅgiṇī*, I, p. 47; II, p. 431.
3. *Dey*, p. 54.
4. *Studies in the Geography of Ancient and Medieval India*, p. 26, fn. 2.

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52. *Draviḍa* (*v. l.* Dramiḍa,[1] IX.15, 19; XVI.11; XXXII.15), a country and its people in the south-west division (XIV.19). Varāhamihira refers to the lords of the Draviḍas (*Draviḍ-ādhipān*, IV.23) and to the eastern half of their country (*Draviḍ-āṇām prāg=ardham*, XVI.2). A sculptural measure current in the Draviḍa country is mentioned in LVII.4. Alberuni (I.302) has Dramiḍa. Draviḍa or Dramiḍa is usually regarded as the Sanskrit name of the Tamil country. According to Kern, however, Varāhamihira seems to intend some Draviḍian tribe in the west, perhaps the Brahui in Baluchistan, who belong to the Draviḍian stock.[2]

53. *Dvīpas* (XIV.14), islands located in the southern division. Kern renders it as Maldives.

54. *Ekacaraṇa* (XIV.31) and *Ekapāda* (XIV.7), literally 'one-footed people', in the north-east and eastern division respectively.

55. *Ekavilocana* (XIV.23), 'people with one eye', in the north-west division. People with three eyes (Trinetra) are also placed in the same division.

56. *Gaṇarājya* (XIV.14 and comm.), a kingdom in the southern division.

57. *Gāndhāra* (IV.23; V.77, 78; IX.21; X.7; XVI.25; XVII.18; LXVIII.26), the people of the Gandhāra country in the northern division (XIV.28). Gandhāra extended from the Kabul valley to Takṣaśilā and comprised the Rawalpindi and Peshawar districts. Varāhamihira mentions two towns of Gandhāra, viz., Takṣaśilā and Puṣkalāvatī (modern Charsadda), situated to the east and west respectively of the Indus. Thus, Gandhāra lay on both sides of the Indus. Strabo and Ptolemy, however, use the name in a limited sense to denote the country west of the Indus.[3] Gandharva-deśa appears to have been the original name of Gandhāra (cf. *Rāmāyaṇa* VII. 101.11, *Takṣam Takṣaśilāyāṁ tu Puṣkalaṁ Puṣkalāvate, Gandharvadeaś rucire Gandhāra-viṣaye ca saḥ*).

58. *Gandharva* (XIII.8; LXXXVI.33), a people or a class of demi-gods in the north-east division (XIV.31).

59. *Gauḍaka* (XIV.7), a country and people in the

1. *JRAS*, 1871, p. 84, fn. 7.
2. *Ibid.*
3. *Ptolemy*, pp. 115-6.

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eastern division. Gauḍa is known to Pāṇini (VI.2.100) and Kauṭilya (II.13). In the Haraha inscr. of Maukhari Iśānavarman, the Gauḍas are described as living on the sea-shore.[1] While in a limited sense, Gauḍa comprised the present Murshidabad district and the southern-most areas of the Malda district in Bengal,[2] it is sometimes used in a wider sense to denote nearly the whole of Bengal. According to some, Western Bengal came to be called Gauḍa from the city of the same name, the ruins of which can be seen about 10 miles south-west of Malda;[3] others hold that the city was named after the country.[4] While Kern's text gives Gauḍaka, in his translation of the verse he gives 'Gauras' and makes the following observation: " 'The whites' supposed to live in the Śvetadvīpa, which according to *Kathāsaritsāgara* 54,18, 199, lies near the cocoa-island."[5] Alberuni (I, 301) gives the reading Gauraka.

60. *Gauragrīva* (XIV.3), literally 'white-necked', a people in Madhyadeśa.

61. *Gavya* (XIV.28), a people in the northern division.

62. *Ghoṣa*, a country in Madhyadeśa (XIV.2) and in the northeast division (XIV.30). While in his translation of XIV.2, Kern retains the name Ghoṣa, in that of XIV. 30, he renders it by "Ghoshas (stations of herdsmen)."[6]

63. *Haihaya* (XIV.20), a people and their country in the western division. Themselves a branch of the Yādavas, the Haihayas were, according to the Purāṇas, divided into five clans, viz., Vītihotra (or Vīrahotra), Bhoja, Avanti, Tuṇḍikera (*v. l.* Kuṇḍikera, Tauṇḍikera and Tuṇḍakera) and Tālajaṅgha.[7] The Kalacuris of Central India were also called Haihayas. The Haihaya country, also called Anūpa, comprised the region round Māhiṣmatī.

64. *Hala* (*v. l.* Laha, XVI.6; XXXII.19), a people in the north-west division (XIV.22).

65. *Halaḍa* (*v. l.* Lahaḍa, Lahara, Laḍaha, Kalaha,

1. *EI*, XIV, p. 7, text line 3.
2. D. C. Sircar, *Geography of Ancient and Medieval India*, p. 113.
3. *Dey*, p. 63.
4. Sircar, *Op. cit.*, p. 111.
5. *JRAS*, 1871, p. 87, fn. 4.
6. Cf. *Amara*, II, 3, 20.
7. *PHAI*, pp. 145-6; Sircar, *op. cit.*, p. 35, fn. 4.

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XIV.22), a country in the north-west division. Kern in his translation gives Lahaḍa, but suggests that "this seems to be Lahara, so frequently mentioned in the *Rājataraṅgiṇī*, e.g. VII.912, 1373 (Lahara, 'Laharian', 1173). It is a borderland between Kashmir and Dardistan; to this identification of Lahara and Lahaḍa, it will not be objected that our author, committing the grave blunder of placing Kashmir and Dardistan in the north-east, should needs have assigned a wrong situation to Lahaḍa too."[1]

66. *Hārahaura* (XIV.33). Varāhamihira refers to the king of Hārahaura or Harahaura as representing the north-west division. It is supposed to be the tract of land lying between the Indus and the Jhelum and the Gandgarh mountain and the Salt range.[2]

67. *Hematāla* (XIV.28), a people in the northern division.

68. *Hūṇa* (*v. l.* Hūna, XIV.27), a people in the northern division. Mention is also made of White Huns (Sita-Hūṇa, XI.61; Śveta-Hūṇa, XVI.37).[3] We learn from the Bhitari pillar inscr. of Skandagupta that he had to encounter the Hūṇas.[4] Yuan Chwang informs us that Bālāditya, the son of Tathāgatagupta, imprisoned but released at the request of the queen mother, the Hūṇa chief Mihirakula and that the latter fled to Kashmir and having treacherously murdered its king, made himself ruler and conquered Gandhāra.[5] Some identify this Bālāditya with Bhānugupta.[6] The war between Bālāditya-Bhānugupta and Mihirakula is probably echoed in the Eran pillar inscr. which tells us that along with 'glorious Bhānugupta, the bravest man on the earth, a mighty king equal to Pārtha,' Goparāja went to Eran and died after fighting a very famous battle about A. D. 510-11.[7] Having been expelled from Central India, the Hūṇas appear to have confined themselves to Kashmir and Gandhāra. They continued to be a source of trouble to some Indian ruling families. They are mentioned

1. *JRAS*, 1871, p. 85, fn. 3.
2. *CASR*, V. p. 79.
3. Utpala distinguishes Sitas and Śvetas from the Hūṇas.
4. *CII*, III, p. 56, line 15.
5. *Yuan Chwang*, I, pp. 288-9.
6. *PHAI*, p. 596.
7. *CII*, III, pp. 92-3.

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in the Aphsad inscr. of Ādityasena.[1] In the *Harṣa-carita* (V) we find Prabhākaravardhana, who is styled *Hūṇa-hariṇa-kesarin*, i. e. lion to the Hūṇa deer, sending his son Rājyavardhana to Uttarāpatha to fight with the Hūṇas.

69. *Ikṣvaku* (V.75; IX.17; XI.58). It is difficult to say whether these Ikṣvākus had any connection with the Ikṣvākus some of whose generations ruling in Āndhradeśa are known to us from Nagarjunakonda inscriptions of about the third century A. D.[2]

70. *Jaṭādhara* (XIV.13), literally 'a people having thick matted hair', in the southern division.

71. *Jaṭāsura* (XIV.30), literally 'demons with matted hair', in the north-east division. Saṅghavarman gives the variant Jaṭāsura in place of Jaṭāpura in the *Mahāmāuyūī*.[3]

72. *Jaṭharāṅga* (XIV.8), a people in the south-east division. Alberuni (I.301) splits it up into Jaṭhara and Aṅga.

73. *Jṛṅga* (XIV.21), a people in the western division.

74. *Kaccha* (IV.22), in the southern division (XIV.16), is modern Kachh or Cutch, to the north of Kathiawad.

75. *Kacchāra* (XIV.27), a people in the northern division.

76. *Kaikaya* (IV.22; V.67, 74; XVI.25; XVII.18), the inhabitants of the Kekaya country in the northern division (XIV.25). There is a reference to the lord of the Kaikayas (*Kaikaya-nātha*) in XI.60. According to the *Rāmāyaṇa* (11.68. 19, 21), the Kekaya country lay beyond the Beas and had its capital at Girivraja which Cunningham identifies with Girjak or Jalalpur on the Jhelum.[4] Roughly speaking, it comprised the districts of Jhelum, Shahpur and Gujarat.

77. *Kailāvata* (XIV.26), a people or country in the northern division.

78. *Kālaka* (XIV.19), a people in the south-west division.

79. *Kaliṅga* (V.35, 75, 79; IX.10, 26; X.16; XVI.1,3; XVII.13, 22; XXXII.15), a country and its people in the

1. *CII* III, p. 206.
2. *EI*, XX, pp. 1 ff.
3. *JUPHS*, XV, Pt. II, text line 77, pp. 29, 46. Levi identifies Jaṭāpura with the city of the Jāṭs referred to as Jarta by Candragomin. It is interesting to note that Varāhamihira places Jaṭāsura, Darada and Kāśmīra in the same division, i. e. north-east. Similarly they are mentioned in close association in *Mahāmāyūrī* indicating that they were situated closeby.
4. *CAGI*, p. 188.

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south-east division (XIV.8, 32). There are references to the king of Kaliṅga in V.69 (*Kaliṅga-deśa-nṛpati*), XI.54 (*Kaliṅgeśam*) and XIV.32 (*Kāliṅga*). It was known for its diamonds with a yellowish tinge (LXXIX.7). Kaliṅga lay between the Mahānadī and the Godāvarī, though in the south it sometimes extended beyond the last mentioned river. In his 8th regnal year, Aśoka conquered Kaliṅga and annexed it to his empire.[1] He issued two special Kaliṅga edicts addressed to the Mahāmātras at Dhauli (Tosali) in the Puri district and at Jaugada (Samāpā) in the Ganjam district.[2] Ancient Kaliṅga thus comprised the districts of Puri and Ganjam. Khāravela, a king of Kaliṅga, had his capital at Kaliṅga-nagarī,[3] usually identified with modern Kalingapatam at the mouth of Vaṁśadhārā or with Mukhalingam near Chicacole.[4] Yuan Chwang distinguishes Kaliṅga from Wu-t'u or Orissa and Kung-yu-t'o or Koṅgodha in the Ganjam district,[5] indicating that in his time Kaliṅga occupied a much smaller area forming parts of modern Ganjam and Vizagapatam districts.[6]

80. *Kalmāṣa* (V.69), a people. No details are given.

81. *Kāmboja* (V.35, 78, 80; XIII.9; XVI.1, 15), a country and the people of it in the south-west division (XVI.17). The king of Kāmboja is referred to in XI.57. On the strength of its association in literature with Gandhāra and the mention in the *Mahābhārata* (VII.4.5) of Rājapura, probably the same as Yuan Chwang's Ho-lo-she-pu-lo (Rājapura)[7] or Rajori to the south of Kashmir,[8] in connection with the Kāmbojas, some are inclined to believe that Kāmboja must be located in this region and that its western boundaries may have reached Kafiristan.[9] But the best criterion for the location of Kāmboja is provided by Yāska who tells us that the root *śava* 'to go' was in use only among the Kāmbojas (*śavatir*=

1. R. E. XIII; *S I.*, p. 37.
2. *Ibid*, pp. 41, 46.
3. *EI*, XX, p. 79.
4. *EI*, IV, p. 187.
5. *Yuan Chwang*, II, pp. 193 ff.
6. *PHAI*, p. 88.
7. *Yuan Chwang*, I, p. 284.
8. *CAGI*, p. 148.
9. *PHAI*, pp. 148-9.

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gatikarmā Kāmbojeṣv=eva bhāṣyate, Nirukta, I.2.1.4). This peculiarity is still current in the Galcha-speaking areas of Pamir and Badakhshan which, therefore, must represent ancient Kāmboja.[1] Varāhamihira, however, places it too much to the south.

82. *Kanaka* (XIV.21), a people in the western division. Kern associates it with the following name Śaka and translates as 'Gold-Scythians'. Utpala takes Kanaka to be a separate name and gives its nominative plural, indicating that he regarded them as a people. According to Dey, Kanaka denotes Travancore.[2]

83. *Kaṅka* (XIV.4), a people in Madhyadeśa.

84. *Kaṅkaṇa* (XIV.12), a people in the southern division.[3]

85. *Kaṅkaṭa* (XIV.12), a people in the southern division.

86. *Kaṇṭhadhāna* (XIV.26), a people in the northern division.

87. *Kapila* (XIV.17), a people in the south-west division. *Kapila* is a variant reading in the *Matsya-purāṇa* list of peoples.[4]

88. *Karṇaprāveya* (*v. l.* Karṇaprādeya, Karṇaprāvaraṇa, XIV.18), a people in the south-west division. Kern observes that Karṇaprāveya is 'synonymous with Karṇaprāvaraṇa mentioned in the *Rāmāyaṇa* (IV.40.26). The *Mārkaṇḍeya-purāṇa* (LVIII.31) misreads it as Karṇaprādheya.

89. *Karṇāṭa* (XIV.13), Kanarese country and the people of it in the southern division.

90. *Karvaṭa* (XVI.12), a people in the esatern division (XIV.5).

91. *Kāśmīra* (V.77, 78; IX.18; X.12), *Kāśmīraka* (V.70; XI.57), the people of Kaśmīra in the north-east division (XIV. 29). Our author places it too much to the east.

92. *Kaubera* (LXXX.2, 6), a place or country celebrated for its pearl-fishery. We have no clue to its identification.

93. *Kerala* (XVI.11), the same as Cera mentioned above.

1. Jayachandra Vidyalankar, *Bhāratabhūmi aur usake nivāsī*, pp. 297-303; *All India Oriental Conference, Proceedings*, Patna Session, p. 109. For a long-drawn controversy on the identification of Kamboja see, *Purāṇa*, V, pp. 160-181, 355-59; VI pp. 221-29, 207-14, 215-20.

2. *Dey*, p. 88.

3. This name is omitted by Fleet.

4. Sircar, *Geography of Ancient and Medieval India*, p. 30, fn. 2.

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The Keralakas or the people of the Kerala country are placed in the southern division (XIV.12). Fleet thinks that Keralaka is a mistake for Kairalaka or Kairaḷaka which is met with in the Allahabad pillar inscr. of Samudragupta.[1] But the actual reading seems to be Kaurāḷaka, not Kairaḷaka.

94. *Keśadhara* (XIV.26), literally 'people keeping long hair', in the northern division.

95. *Khacara* (XIV.28), literally 'people moving in the sky', in the northern division. See Diviṣṭha above.

96. *Khaṇḍa* (XIV.18), a people in the south-west division.

97. *Khasa* (X.12; LXVIII.26), a people in the eastern (XIV.6) and north-east divisions (XIV.30). In XIV.30, Kern gives Khaśa. The country of the Khas(ś)as lay in adjacent hills on the south and west of Kashmir, extending from Kastvar in the south-east to the Jhelum in the west and including the hill-states of Rājapurī and Lohara. They are represented by modern Khakkas in Kashmir.[2]

98. *Khastha* (XIV.22), literally 'people living in the heaven', in the north-west division. See Diviṣṭha above.

99. *Kīra* (XXXII.19), a people in the north-east division (XIV.29). Kīras are named in a number of epigraphic records.[3] Their country comprised the territory near Baijnath in the Kangra valley. A Chamba copper-plate inscr. mentions Kīras between Durgaras (Dongras) and Trigartas.[4] Varāhamihira places them very much in the east.

100. *Kirāta* (V.35, 80; IX.35; XI.60; XVI.2; XXXII.22), a people in the south-west and north-east devisions (XIV.18, 30). We have references to the king of the Kirātas in IX.17 (*Kirāta-bharttuḥ*) and XI.54 (*Kirāta-pārthivam*). We know nothing about the Kirāta settlements in the south-west of India. Kirātas are a flat-nosed people, identical with the Cirrhadae living to the west of the mouth of the Gaṅgā mentioned in the *Periplus*,[5] and with the Kirrhadia of Ptolemy living

1. *CII*, III, p. 7, line 19.
2. Stein, *Ancient Geography of Kashmir*, p. 430; *Rājataraṅgiṇī*, I, pp. 47-48n; *Dey*, p. 99.
3. *EI*, I, p. 97; IV, p. 246; *CII*, IV, pp. 255, 313, 314, etc.
4. *IA*, XVII, pp. 7 ff.
5. *Periplus*, pp. 47, 253-4.

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nearabout Tipperah.[1] In the *Raghuvaṁśa* (IV.76), we find Raghu crossing the Himalayas, proceeding eastwards to the Brahmaputra valley, and then meeting the Kirātas. The descendants of the Kirātas, still known by this name, are found living in the Morung, west of Sikkim.

101. *Kohala* (*v. l.* Kośala, XIV.27), a people in the northern division.

102. *Koṅkaṇa* (XIV.12), a country in the southern division, comprised the entire strip of land between the Western Ghats (ancient Sahya) and the Arabian Sea with its capital at Śūrpāraka, modern Sopara near Bombay. Alberuni (I.203) refers to Tana as the capital.

103. *Kośala* (V.69; IX.26; X.4, 13, 14; XVI.6; XVII.22), a country in the south-east division (XIV.8). *Kośalaka* (correctly *Kausalaka*), or the people of Kośala, are placed in the eastern division (XIV.7). The people of Kośala are called *Kauśalaka* (V.70) as well as *Kausalaka* (X.9). The latter form is also met with in the Allahabad pillar inscr. of Samudragupta.[2] The eastern Kośala roughly corresponds to the present Oudh. Kośala in the south-east division roughly comprised the region of Chhattisgarh and a portion of Orissa to the east of it. According to the *Vāyupurāṇa* (80.199-200), Lava and Kuśa, the two sons of Dāśarathi Rāma, divided their paternal kingdom of Kośala into two parts, the former ruling over Uttara-Kośala with Śrāvastī as capital, and the latter ruling over Dakṣiṇa-Kośala (or Kośalā) with Kuśasthalī amidst the hills of the Vindhya for its capital.[3] The Allahabad pillar inscr. includes Kosala ruled over by Mahendragiri among the kingdoms of Dakṣiṇāpatha whose rulers were defeated but later reinstated by Samudragupta.[4] Kosala (probably the Panna region in Bundelkhand) was celebrated for diamond-mining (LXXIX.6).

104. *Koṭivarṣa.* The king of Koṭivarśa is mentioned in IX.11. It is probably the same as the Koṭivarṣa-viṣaya (roughly corresponding to Dinajpur district with Bāṇapura, modern Bangarh, as its chief town), in the Puṇḍravardhana-*bhukti*

1. *Ptolemy*, pp. 192 ff.
2. *CII*, III, p. 7, line 19.
3. D. R. Patil, *Op. cit.*, p. 293.
4. *CII*, III, p. 7, line 19.

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(north Bengal,), so frequently mentioned in the Damodarpur copper-plate inscriptions.[1] The Jaina *Prajñāpanā* locates Kotivarṣa in Lāṭa or Lāḍhā, evidently an error for Rāḍhā.[2]

105. *Krauñcadvīpa* (X.18), a country or island in the southern division (XIV.13).

106. *Kravyāda* (XIV.18), literally 'eaters of raw flesh', a people in the south-west division.[3]

107. *Kṣemadhūrta* (XIV.28), a people in the northern division.

108. *Kṣudramīna* (XIV.24), a people in the northern division.

109. *Kucika* (XIV.30), a people in the north-east division.

110. *Kukura* (V.71; XXXII.22), a people and their country in Madhyadeśa (XIV.4).[4] In the Junagadh inscr. of Rudradāman I, it is associated with Kaccha, Sindhu-Sauvīra and Aparānta,[5] while the Nasik cave inscr. of Vāsiṣṭhīputra Puḷumāvi mentions it between Surāṣṭra and Aparānta.[6] Therefore, it is located near Ānarta in north Kathiawad. Our author's Kukura, which is placed in Madhyadeśa, seems to correspond to east Rajputana.

111. *Kulinda*, a country implied in Kaulinda (IV.24), the people of Kulinda, the same as Kuṇinda, in the north-east division (XIV.30, 33).[7] Ptolemy mentions it as Kylindrine which according to Mc Crindle, 'designated the region of lofty mountains wherein the Vipāśā, the Śatadrū, the Yamunā and the Gaṅgā had their sources.'[8]

112. *Kulūta* (X.12; XVII.18) partly in the north-west (XIV.22) and partly in the north-east (XIV.29) divisions, is the famous Kullu in the upper valley of the Beas. Yuan Chwang calls it Kiu-lu-to.[9] The people of Kulūta are referred to as *Kulūtaka* (IV.22) and *Kaulūta* (X.11).

1. *EI*, XV, pp. 130 ff.
2. *JUPHS*, Vol. XV, Pt. II, p. 44.
3. Fleet mentions Kravyāśin instead of Kravyāda.
4. The statement of B. C. Law that *BS* locates Kukuras in Western India (*Historical Geography*, p. 287) is incorrect.
5. *SI*, p. 172, line 11.
6. *Ibid*, p. 196, line 2.
7. Not mentioned by Fleet.
8. *Ptolemy*, p. 109.
9. *Yuan Chwang*, I, p. 298.

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113. *Kuntala* (XVI.11) seems to have comprised the Kanarese districts of Bombay, Madras and Mysore States as also southern Mahārāshtra.[1] According to Soḍḍhala's *Udaya-sundarīkathā*, Pratiṣṭhāna (Paithan) on the Godāvarī was its capital.

114. *Kuntibhoja* (X.15) is the name of a people according to Utpala. The *Agni-purāṇa* (LV.12) speaks of Kunti as a country in Madhyadeśa. It is stated in the *Mahābhārata* that the Aśvanadī, a tributary of the Chambal, flowed through the country of Kuntibhoja (Vanaparvan, 308.7, 22, 25).[2] The name can be still recognised in Kontwar near Ashokanagar in the Guna district of Madhya Pradesh.

115. *Kuru* (V.38; IX.34; XXXII.11), a people and their country in Madhyadeśa (XIV.4). The people of the Kuru-land are spoken of as *Kaurava* (IV.24, 25; IX.30) and *Kurubhūmija* (XVI.31). Utpala takes Kurubhūmi to mean the region round Thaneswar (*Kuru-bhūmijāḥ janāḥ Sthāneśvare nivasanti*). Alberuni (I.300), too, renders Kuru by 'Taneshar.' The Kurubhūmi, comprising the region within the triangle of Thaneshwar, Hissar and Meerut was divided into three parts. The Kuru proper occupied the region between the Gaṅgā and the Yamunā with Hastināpura near Meerut as their head-quarters. The remaining two divisions, viz., Kurukṣetra (V.78; XI.57) and Kurujāṅgala (IX.29), are noticed by our author. Kurukṣetra lay between the Sarasvatī on the north and the Dṛṣadvatī on the south (cf. *Mahābhārata*, Vanaparvan, 83.204-5 : *Dakṣiṇena Sarasvatyā uttareṇa Dṛṣadvatīm | ye vasanti Kurukṣetre te vasanti triviṣṭape*||)[3] with Thaneshwar for its centre. Manu (II.17) calls it by the name Brahmāvarta and speaks of it as the holiest land inhabited by the Āryans. Kuru-jāṅgala probably covered the region between the Sarasvatī and the Yamunā (between the Kāmyaka forest and Khāṇḍava.)[4] We have references to the people (*Kurukṣetraka*, V. 78) and king (*Kurukṣetr-ādhipa*, XI.57) of Kurukṣetra. These divisions evidently belong to southern Kuru realm. The Uttara-kurus, who

1. Cf. *IHQ*, 1946, pp. 309-15; 1947, pp. 320-22.
2. For other references to Kunti, cf. *Mahābhārata*, II. 14. 26, 27; VI. 9.40-3.
3. Also cf. *Mahābhārata*, III, 83.4.
4. Cf. *Ibid*, *Ādiparvaan*, 222.14; Vanaparvan, 5. 3.

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are assigned to the northern division (XIV.24), lived beyond the Himavat range (*pareṇa Himavantam*, *Aitareya Brāhmaṇa*, VIII. 14), probably in the land of Kashmir. They are the same as Ottorokorrha of Ptolemy[1] Kern translates *Uttarāḥ Kuravaḥ* by 'the Hyperboreans', a western repetition of the Uttarakuru of Kaśmir.' While in earlier literature they were a real people, the later literature represents the land of the Uttara-Kurus as an earthly paradise.

116. *Laṅkā* (XIV.11) in the southern division is usually regarded as identical with the island of Ceylon. But Varāhamihira seems to distinguish it from Siṁhala (Ceylon) which is also placed in the southern division (XIV.15). Therefore, as pointed out by Fleet, Laṅkā seems to denote here 'not the island of Ceylon, but its capital city, which it was perhaps thought necessary to mention separately, because it provides the Hindu prime meridian'.[2] Alberuni (I.301) renders Laṅkā as 'the cupola of the earth.'

117. *Lāṭa* (LXVIII.11) comprised the central and southern Gujarat between the rivers Mahi and Tapi. It is probably the same with Ptolemy's Larike (probably a formation from Lār, Lāṭa), which lay to the east of Indo-Scythia along the sea-coast and included the cities of Broach and Ujjain,[3] and with Alberuni's Lārdesh whose two capitals, viz., Bihraj and Rihanjur, are said to have been on the sea-coast to the east of Tana.[4]

118. *Madra* (IV.22; V.40; X.4; XVII.18; XXXII.19), a people and their country in the north-west (XIV.22). The *Mahābhārata* (Karṇaparvan, Chs. 44-5) speaks of Madra as a part of the Vāhīka country. It covered the extensive territory between the Ravi[5] and the Jhelum. The region between the Ravi and Chenab constituted its eastern wing with Sialkot as the capital; the West Madra extended from the Chenab in the east to the Jhelum in the west. We have a reference to the ruler of Madra in XI.59 (*Madraka-pati*). The Madrakas of the northern division (XIV.27, 33) are evidently the same as

1. *Ptolemy*, pp. 305, 326.
2. *IA*, XXII, p. 183.
3. *Ptolemy*, pp. 38, 153 f.
4. *Alberuni*, I, p. 205.
5. Cf. *Mahābhārata*, Karṇaparvan, 44.17.

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the Uttara-Madras who lived beyond the Himavat range, probably in Kashmir.[1]

119. *Magadha* (IV.22, 26; V.69, 79; X.14; XVI.1; XXXII.11), in the eastern division (XIV.6), originally comprised the districts of Patna and Gaya in Bihar. It was considered to be the chief country of the eastern division (XIV.32). It is difficult to say whether the ward *Māgadhā* (X.10) denotes an inhabitant of Magadha or a bard. We have several allusions to the king of Magadha (*Magadh-eśa*, X.16; *Magadh-ādhipa*, XI.55; *Māgadhika*, XIV.32). Its older name Kīkaṭa occurs in the *Ṛgveda* (III.53.14) and Magadha as such is first mentioned in the *Atharvaveda* (V.22.14).

120. *Mahāgrīva* (XIV.9), literally 'people with great neck', in the south-east division.

121. *Mahārāṣṭra* (X.8). Varāhamihira mentions the nominative plural form of Mahārāṣṭra (*Mahārāṣṭrāḥ*) which probably refers to the territorial divisions constituting it. The famous Aihole-Meguti inscr. states that by his conquests Pulakeśin II made himself lord of the three Mahārāṣṭrakas comprising ninety-nine thousand villages.[2] The three Mahārāṣṭra countries seem to refer to Koṅkaṇa, southern Maratha country and Vidarbha.

122. *Mahiṣa* (IX.10), a country the people of wich are referred to as Mahiṣaka (XVII.26). Sir R. G. Bhandarkar placed the Mahiṣaka country on the Narmadā with Māhiṣmatī for its capital.[3] Rice identifies Mahiṣa or Mahiṣa-maṇḍala with South Mysore with Mysore as the principal town.[4] The Hebbata grant of Kadamba Viṣṇuvarman I shows that the present Tumkur area in Mysore was called Mahiṣaviṣaya in the fifth century A. D.[5] From certain coins found at Kondapur and Maski, Dr. V.V. Mirashi has tried to show that a dynasty called Mahiṣa ruled over the southern portions of the Hyderabad State about the second or third century A. D.[6] Thus Mahiṣa seems

1. Cf. *Aitareya Brāhmaṇa*, VIII.14.
2. *EI*, VI, p. 6, line 12, v. 25.
3. *Collected Works*, III, pp. 13-4.
4. *JRAS*, 1911, pp. 810, 814.
5. *Annual Report of the Mysore Archaeological Department for* 1924, p. 98; D. C. Sircar, *Successors of the Sātavāhanas in the Deccan*, p. 393.
6. *JNSI*, XI, pp. 1 ff. But *contra* D.C. Sircar in *EI*, XXXV, pp. 69-74.

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to have included, besides Mysore, the districts of Kondapur and Maski in southern Hyderabad.

122. *Mālava* (IV.24; XVI.25; XXXII.19; LXVIII.11), a people and their country in the northern division (XIV.27). Fleet observes, 'Varāhamihira places them too much to the north, as they are undoubtedly the people of Malwa, from whom .....the Vikrama era derived its origin.'[1] There is, however, nothing to show that the present Malwa was so called in the sixth century A. D. In all likelihood, Varāhamihira refers here to a northern settlement of the Mālavas (the Malloi of classical writers) who lived between the lower Ravi and the Chenab in the fourth century B. C.[2] About the beginning of the first century B. C., they migrated to Rajputana, where they are found in the early centuries of the Christian era. In the second century A. D., they came into conflict with the Uttamabhadras of the Ajmer region who were supported by Uṣavadāta, son-in-law of the Kṣaharāta ruler Nahapāna.[3] A large number of Mālava coins bearing the legend *jaya Mālavānām* or *Mālavānām jayaḥ* (1st century B. C. onwards) have been found at Nagar and adjoining region in the Jaipur State. The presence of the Mālavas in this region down to the fourth century A. D. is evidenced by Samudragupta's Prayāga *praśasti* which groups them with such northern tribes as the Ārjunāyanas, Madrakas and the Yaudheyas.[4]

124. *Malla* (V.38, 41). Utpala explains the word '*malla*' by '*bāhuyuddhajña*', i. e. wrestlers or boxers. But as in V.38, it is preceded by Pahlava and followed by Matsya, Kuru, Śaka, etc., and in V.41 it follows Videha and precedes Pāñcāla, it is more reasonable to take it to denote the people of that name. In Buddha's time, the Mallas are known to have occupied the region about Pāvā (Padarauna, 12 miles north-north-east of Kasia) and Kuśināra (Kasia in Gorakhpur, Uttar Pradesh). They had nothing to do with the Malloi of the Panjab.

125. *Māṇahala* (XIV.27), a people in the northern division.

126. *Māṇḍavya*, a people placed in Madhyadeśa (XIV.2),

1. *IA*, XXII, p. 184.
2. *Cambridge History of India*, Vol. I, p. 336.
3. *ASWI*, IV, p. 99.
4. *CII*, III, p. 8, line 22.

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in the north-west and northern divisions (XIV.22, 27).[1]

127. *Mantriśika* (XVI.11), a people not assigned to any division (*v.l.* Mamtriśikha, Matriṣika, Māhiṣaka, Pārasīka, Māmyūṣika).

128. *Mārgara* (XIV.18), a people in the south-west division.

129. *Mārttikāvata* (XVI.25). Utpala regards it as the name of a country. This name was probably derived from the town Mṛttikāvatapura which is the same as Mṛttikāvarapura mentioned in the *Viṣṇupurāṇa* (IV.13.7). We are told in the *Viṣṇupurāṇa* that on account of living in this town the Bhojas came to be known as Mārttikāvara which appears to be a mistake for our Mārttikāvata. Dey proposes to identify the town with ancient Sālvapura, modern Alwar, or with Merta in Marwar, 36 miles north-west of Ajmer. Thus, according to him, the country comprised parts of the former Jodhpur, Jaipur and Alwar States.[2] But as the *Viṣṇupurāṇa* associates Mṛttikāvatapura with the Bhojas, its identification with the country of the Bhojas by the side of the Parṇāśā (Banas) in Malwa, as proposed by Wilson, seems to be more probable.

130. *Maru* (XVI.37), in Madhyadeśa (XIV.2), corresponds to Marwar in Rajputana. Our author refers to people born or articles grown in Marwar (*Maru-bhava*, V.68). In IV.22, we have the compound *Nepāla-Bhṛṅgi-Maru-Kaccha-Surāṣṭra-Madrān*. While commenting on this verse, Utpala simply repeats the compound adding the words *etān janān*. It cannot be determined whether Marukaccha is to be taken as one word or to be split up into Maru and Kaccha. Kern proposes to replace Marukaccha by Marukucca which is the name of an ancient people in modern Kafiristan or thereabouts.[3]

131. *Marukacchapa* (V.40) is the name of a people, according to Utpala.

1. They may be identified with the people Madavika known from an early copper coin whose findspot has not been recorded. Cf. *JNSI*, IV, pp. 21-2. Māndavi of the *Mahāmāyūrī* (line 54) which is sometimes identified with Mandawar, 8 miles north of Bijnor (*JUPHS*, XV, p. 43n), or Māṇḍavyapura (Mandor near Jodhpur) (*EI*, XVIII, pp. 87ff.) may have been their chief town.

2. *Dey*, p. 127.

3. *JRAS*, 1870, p. 453, fn. 2. The statement of Kern that Utpala takes it to be one word is incorrect.

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132. *Marukucca* (*v.l.* Marukacca, Murukucca, Murūku, Bharukaccha, Marūhaturukaca, Nuruka, Marukastha, Purukutsa, Gurukutsa and Paramucca, XIV.23), a people in the north-west division. See Maru above.

133. *Matsya* (V.37, 38; IX.18; XVII.22; XXXII.11), a country and the people of it, in Madhyadeśa (XIV.2). Half the rural nation of the Matsyas (*Matsyārdha-grāmarāṣṭrāṇi*) is referred to in XVI.21. There is a reference to the lord of Matsya (*Matsy-ādhipa*, IV.24). Matsya comprised parts of Jaipur and Bharatpur and had Virāṭanagara, modern Bairat in Jaipur, for its capital. Some include even Alwar region in Matsya; but it seems to have formed part of Sālva.

134. *Mleccha* (V.79; IX.13; XVI.11, 34; XVII.14, 16, 20), a people styled as lawless in the western division (*Nirmaryādā Mlecchā ye paścima-dik-sthitās=te ca*, XIV.21). The *Agnipurāṇa* (LV.17, 19) also assigns the Mlecchas to the west and north of Bhāratavarsa. Kern renders it by 'barbarians' or 'foreigners'. In II.15, Yavanas (Greeks) are spoken of as Mleccha (*Mlecchā hi Yavanāḥ*). Varāhamihira probably refers to the Yavanas so frequently mentioned in inscriptions in western Indian caves. In Alberuni's time, it was used to denote the Arabs (I.302).

135. *Nagna-śabara* (XIV.10), 'nude Śabaras', a people in the south-east division. The text gives *Nagna-parṇa-śabaraiḥ*. According to Utpala, the word Śabara is connected with both *nagna* and *parṇa*. Thus he takes Nagna-śabaras and Parṇa-śabaras to be two different peoples. See Śabara below.

136. *Nālikera-dvīpa* (XIV.9), literally 'the island of cocoa-nuts', some region in the south-east division. According to the *Kathā-saritsāgara*, it is a big island.[2]

137. *Nārīmukha* (XIV.17), literally 'a people with feminine faces', in the south-west division.

138. *Naṣṭa-rājya* (XIV.29), literally 'kingdom of the dead', in the north-east division. The text gives *Meruka-naṣṭa-rājya* which Utpala splits into Meruka and Naṣṭarājya. There is nothing to support Fleet's conjecture that the original reading was *Meru-kanishkarājya*.[3]

1. *Dey*, p. 128.
2. *JRAS*, 1871, p. 83, fn. 1.
3. *IA*, XXII, p. 185.

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139. *Nepāla* (IV.22; V.65), Nepal.[1]

140. *Nīpa* (XIV.2), a people in Madhyadeśa.[2]

141. *Niṣāda-rāṣṭra* (XIV.10), the country of the Niṣādas, an aboriginal people, in the south-east division. A corporation of the Niṣādas (*Niṣāda-saṅgha*) is mentioned in V.76.[3] Commenting on the last verse, Utpala takes Niṣāda in the sense of a hunter (*Niṣādānāṁ prāṇighātakānāṁ saṅghaḥ*). The celebrated Vedic commentator Mahīdhara understands Niṣāda as meaning a Bhil.[4] The *Mahābhārata* (III.130.4) mentions Vinaśana or the place of the disappearance of the Sarasvatī as the gate of Niṣādarāṣṭra (*dvāraṁ Niṣādarāṣṭrasya*). It places a Niṣāda settlement (*Niṣādabhūmi*) between Matsya and the Chambal (II.31.4-7). A Niṣāda named Kāyavya is described there as *Pāriyātracara* (XII.135.5). Thus in the Epic period, the Niṣādas were settled among the hilly regions that form the western boundary of Malwa and Khandesh in the range of the Vindhya and Satpura. The earliest epigraphic reference to a tribal state of the Niṣādas[5] occurs in the Junagadh inscr. (A. D. 150), where it is said to have been included in the dominions of Rudradāman I.[6]

142. *Pahlava* (V.38; XVI.37; XVIII.6), the Parthians in the south-west division (XIV.17). As the Pahlavas are assigned to the same division as Kāmboja and Sindhu-Sauvīra, Parthian settlements in the north-west of India seem to be intended. Parthians were an Iranian people who are known to have occupied parts of north-western India in a few centuries before and after Christ. The presence of sporadic Parthian settlements in western India is rendered probable by some inscriptional references.[7]

1. In the Allahabad pillar inscr., it is mentioned as one of the kingdoms on the boundary of Samudragupta's empire. Cf. *CII*, III, p. 8, line 22.

2. Cf. *Mahābārata*, II, 51.24, where Nīpas are associated with the Anūpas.

3. The statement of B.C. Law that *BS*, XIV,10 places a Niṣāda settlement in the east is incorrect.

4. *Vedic Index*, I, p. 454.

5. Probably in the western Vindhya and Aravalli hills.

6. *SI*, p. 172, line 11.

7. Junagadh inscr. of Rudradāman I (*SI*, p. 174, line 19. Rudradāman I appointed Pahlava Suviśākha, the son of Kulaipa, as governor of Ānartta and Surāṣṭra); Sātakarṇi is described as the extirpator of Śakas, Yavanas and Pahlavas, cf. *SI*, p. 197.

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143. *Pāñcāla* (IV.22; V.35, 38, 41; IX.29; X.4, 13), the inhabitants of Pañcāla. in Madhyadeśa (XIV.3). The king of Pañcāla, called *Pāñcāla*, is spoken of as the chief king of Madhyadeśa (XIV.32). Pañcāla was originally the country north and west of Delhi from the foot of the Himalayas to the river Chambal. The Gaṅgā divided it into Uttara (North) and Dakṣiṇa (South) Pañcāla with Ahicchatrā or Chatravatī (present Ramnagar in the Bareilly district) and Kāmpilya (Kampil in Farrukhabad) as their respective capitals.

144. *Pañcanada*, literally 'the country of the five rivers', the Panjab, in the western division (XIV.21). The people and the ruler of Pañcanada are called *Pāñcanada* (X. 6;XI.60).

145. *Pāṇḍuguḍa* (XIV.3), a people in Madhyadeśa. Alberuni (I.300) splits it up into Pāṇḍu and Guḍa, the latter being the same as Thaneshwar. So do Kern and Fleet. But Utpala takes it to be one word. Even if Pāṇḍu and Guḍa are intended, the Pāṇḍu-vaṁśa to which Indrabala, Nannadeva and Tīvararāja belonged, according to the Rajim grant[1], has nothing to do with our Pāṇḍus who are allotted to Madhyadeśa.

146. *Pāṇḍya*. The Pāṇḍya country comprised the districts of Tinnevelly and Madura in the Madras State. Varāhamihira refers to the Pāṇḍya ruler as *Pāṇḍya-nareśvara* (IV.10), *Pāṇḍya-nātha* (VI.8) and *Pāṇḍya-nṛpa* (XI.56). Pāṇḍyas were a very ancient people and are mentioned by Megasthenese,[2] Ptolemy[3] and the author of the *Periplus* (frag. 54, 59). Our author refers to Uttara (North)-Pāṇḍya (XVI.10), indicating that the Pāṇḍya country was divided into two parts, North and South. The mention of the Pāṇḍyas (*Pāḍā*) in nominative plural in Aśoka's R. E. II, may indicate, as suggested by D. R. Bhandarkar, that there were two Pāṇḍya kingdoms even in Aśoka's time. Bhandarkar thinks that North Pāṇḍya comprised the tract now occupied by the Mysore State.[4]

147. *Pāraśava* (XIV.18), a country and its people in the south-west division. It is Persia celebrated for its pearls (LXXX,2,5).

1. *CII*, III, p. 298.
2. Mc Crindle, *Megasthenes and Arrian*, p. 115.
3. *Ptolemy*, pp. 59, 183-4.
4. D. R. Bhandarkar, *Aśoka*, pp. 36-38.

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148. *Pārata* (X.7; XIII.9; XVI.4, 12, 21), a people in the western division (XIV.21). In X.5, we come across the compound *Pārataramaṭhāḥ* which Utpala splits into Pāratara and Maṭha. A better division would be Pārata and Ramaṭha. Pārata is also mentioned in the Buddhist work *Mahāmāyūrī*. As already pointed out by Fleet and Lévi, Pāratas are probably the same as the Pāradas,[1] whom the *Rāmāyaṇa* (IV.44.13) places in the trans-Indus region. Lassen identifies them with Ptolemy's Pardene in the centre of Gedrosia (Baluchistan).[2]

149. *Parṇa-śabara*[3] (XIV.10), literally 'the Śabaras subsisting on or clad in leaves', a people in the south-east division. Kern thinks that they are Ptolemy's Phyllitai[4] who "occupied the banks of the Tapti lower down than the Rhamnai, and extended northward to the Satpura range'.[5] According to Yule, however, Phyllitai may represent the Pulindas.[6] The Parṇaśabaras may be identical with the hill-tribe of the Sawaras living in the hilly region adjoining the Bastar State who still dress themselves in leaves.

150. *Paśupāla* (XIV.29), literally 'tenders of animals', probably a nomadic people in the north-east division.

151. *Paṭola*, (*v. l.* Palola, XIV.30,) a region in the north-east division. Kern gives Palola which, according to him, must be a vulgar pronunciation for the Skr. *Palvala*, 'swamp, marsh'. He further suggests that by Palola is meant the eastern part of the Tarai near Cooch-Behar.[7]

152. *Paurava* (XVI.21; XXXII.19), a people allotted to the northern and north-east divisions (XIV.23, 31). The Pauravas or Purus lived on the eastern bank of the Jhelum including the Gujarat district. In the fourth century B. C., when Alexander invaded India, Porus, probably a Puru chief, was ruling over the region between the rivers Jhelum and Chenab.

153. *Phaṇikāra* (XIV.12), a people in the southern division.

1. *IA*, XXII, p. 187; *JUPHS* XV, Pt. II, p. 47.
2. *Ibid.* Vide also Oppert, *The Original Inhabitants of Bhāratavarṣa*, p. 35.
3. Not mentioned by Fleet.
4. *JRAS*, 1871, p. 83, fn. 4.
5. *Ptolemy*, p. 160.
6. *Ibid.*
7. *JRAS*, 1871, p. 86, fn. 4.

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154. *Piśika* (XIV.14), a people in the southern division.

155. *Prāgjyotiṣa* (XVI.1), in the eastern division (XIV.6), comprised the region round Gauhati. In the *Harṣacarita* (VII), *Kumāra* Bhāskaravarman of Assam is styled as *Prāgjyotiṣeśvara*. It was also the name of a city, probably identical with modern Gauhati.[1] According to the *Raghuvaṁśa* (IV.81), Prāgjyotiṣa lay on the other bank of the Lauhitya or Brahmaputra. In the Bargaon grant of Ratnapāla also Prāgjyotiṣa is described as beautified by the Lauhitya.[2] Hemacandra regards Prāgjyotisa and Kāmarūpa as synonymous.[3]

156. *Prasthala* (XIV.25), according to Pargiter, denotes the district between Ferozepur, Patiala and Sirsa.[4] B. C. Law[5] suggests to identify it with Patala, the capital of the little state of Patalene in the Indus delta mentioned by the Greeks.

157. *Pulindas* (IV.22; V.39, 77, 78; IX.17, 29, 40; XVI.2, 32) are an aboriginal people. Their tribal organization (*gaṇa*) is mentioned in V.39. According to Pargiter, there were three main branches of Pulindas, i. e. western, Himalayan, and southern.[6] Our author associates the tribe with Avanti, Śabaras, Dakṣiṇāpatha, Draviḍas and the Maikal range (IX.17, 29, 40; XVI.2, 32; V.39), showing that their southern settlements in the Vindhya regions are intended. In the *Aitareya Brāhmaṇa* (VII.18) and in Rock Edict XIII of Aśoka, they are associated with the Andhras. Kālidāsa (*Raghuvaṁśa*, XVI. 19, 32) places them in the Vindhya region. In the Navagrāma grant of the Parivrājaka Mahārāja Hastin reference is made to a *Pulinda-rāja-rāṣṭra* lying in the Parivrājaka dominion, viz., Ḍabhāla-maṇḍala in the northern part of the Central Provinces.[7] According to some, Ptolemy's Phyllitai occupying the banks of the Tāptī and extending northward to the Satpura range represent the Pulindas.[8]

158. *Puṇḍra* (V.70; IX.15; X.14; XI. 27; XVI.3) or *Pauṇḍrā* (V.74, 80; XIV.7), a people and their country in the

1. *JRAS*, 1900, p. 25.
2. *EI*, XII, pp. 37 ff.
3. *Abhidhāna-Cintāmaṇi*, IV.22.
4. Pargiter, *Mārkaṇḍeya-Purāṇa*, p. 321 and note.
5. *Historical Geography*, p. 117.
6. *Mārkaṇḍeya-purāṇa*, pp. 316, 335, 338 and notes.
7. *EI*, XXI, p. 126.
8. *Ptolemy*, p. 160.

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eastern division. The lord of the Puṇḍras is referred to in XI.58 (*Puṇḍr-ādhipati*). Puṇḍra corresponds to North Bengal with Puṇḍravardhana or Puṇḍranagara as its capital. The Mahasthan stone plaque inscr. places the identification of Puṇḍranagara with Mahasthan in the Bogra district beyond doubt.[1]

159. *Purika* (XIV.10), in the south-east division, appears to be intended for Purikā, which, according to the *Harivaṁśa* (Viṣṇuparvan, 38.21-2), was situated at the foot of the mountain Ṛkṣavat (Satpura). Fleet locates it on an open area on the south of the island-village of Onkar Mandhata, where the map shows the villages called Godurpoora, Bainpoora, Baintanpoora and Dhooka.[2]

160. *Pūruṣāda* (IV.22) or *Puruṣāḍa* (XIV.6), 'cannibals', in the eastern division. Kern observes, 'The cannibals being always placed in the far east must denote either the inhabitants of the Andamans and Nicobars, or the cannibal tribes of the Indian Archipelago, or both.[3]

161. *Rājanya* (XIV.28), a people in the northern division. The Rājanyas appear to be the same as the Kṣatriyas or Xathroi of the Greek writers.[4] The Hoshiarpur region where coins of the Rājanya-janapada are found in abundance[5] was evidently their homeland. Later, they migrated to Mathura which has also yielded a large number of their coins.

162. *Ramaṭha* (X.5; XVI.20), a people in the western division (XIV.21). S. Lévi[6] places the Ramaṭhas between Ghazni and Wakhan.

163. *Romaka* (XVI.6), It is translated by Kern as 'Romans'. According to some, 'the Romakas may be the people of Ruma lying probably near the Salt Range.'[7]

164. *Ṛṣabha* (XIV.15), a people in the southern division.

1. *EI*, XXI, p. 85. Cf. P. C. Sen, Puṇḍravardhana, *IHQ*, IX, pp. 722-35.

2. *JRAS*, 1910, p. 446. Also cf. *EI*, XXVI, p. 151. For epigraphical references to Purikā see *Lüders' List*, Nos. 782, 812, 837, 838, 839.

3. *JRAS*, 1870, p. 453, fn. 3.

4. Mc Crindle identifies Xathroi with the Kṣatri (Kṣatriyas) of Sanskrit literature, cf. *Invasion of India by Alexander the Great*, p. 156 note.

5. Allan, *BMC, AI*, p. cxxiii.

6. *JUPHS*, XV pp. II, pp. 29, 49; *Journal Asiatique*, 1918, p. 125.

7. D. C. Sircar, *Geography of Ancient and Medieval India*, p. 62, fn. 2.

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165. *Ṛṣika* (XIV.15), a people in the southern division. In the epic literature, the Ṛṣikas are grouped with Vidarbha, Mahiṣaka, Aśmaka and Anūpa.[1] The Ṛṣika country was, thus, contiguous to Vidarbha, Aśmaka (Aurangabad region) and Anūpa (region round Māhiṣmatī). Dr. Mirashi thinks that Ṛṣika was the ancient name of Khandesh.[2] According to others, the Ṛṣikas are the same as the Asikas of the Hathigumpha inscr. of Khāravela whose country 'possibly lay between the Krishna and the Godavari, and to the south of Aśmaka'.[3] But as we have seen above, Varāhamihira draws a distinction between the Asikas and the Ṛṣikas.[4]

166. *Śabara* (V.38; IX.15; X.18; XVI.1), an aboriginal people often associated with the Pulindas (IX.29; XVI.32) and Draviḍas (XXXII.15). 'A band of the Śabaras, hunters and thieves' is referred to in LXXXVI.10 (*Śabara-vyādha-cora-saṅgha*). In the Purāṇas, the Śabaras are described as the inhabitants of Dakṣiṇāpatha.[5] They are identified by Cunningham with the Suari of Pliny and the Sabarai of Ptolemy, and are represented by Savaris or Saharias of the Gwalior territory occupying the forests on the Kota frontier to the westward of Narwar and Guna and by the Rajputana Surrias along the course of the Chambal and its branches. In the south they extend as far as the Pennar river while in the north they are found in large numbers to the south-west of Gwalior and Narwar and in the southern Rajputana. The Sorae Nomades of Ptolemy are the Śabaras of Central India 'who occupy the wild hilly country about the courses of the Wainganga, and who are also found along the valley of the Kistna river.'[6] A Śabara king named Udayana is mentioned in a grant of the Pallava king Nandivarman Pallavamalla.[7]

167. *Śaka* (V.38, 75; IX.21; XIII.9; XVI.1; XVII.26;

1. Cf. *Rāmāyaṇa* IV, 41.10; *Mahābhārata*, Bhīṣmaparvan, 9.64; Udyogaparvan, 4.18-9, Karṇaparvan, 8.20.
2. *ABORI*, XXV (1944), pp. 167-68.
3. Sircar, *Geography of Ancient and Medieval India*, p. 31; *SI*, I, p. 198, fn. 3.
4. Vide *supra*, p. 69.
5. *Matsya-purāṇa*, CXIV.46-8; *Vāyu-purāṇa*, XLV.126; *PHAI*, p. 93; also p. 94 fn. 1.
6. *CAGI*, p. 583.
7. *IA*, VIII, p. 279.

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XVIII.6). The Śakas are assigned to the western division (XIV.21). In XIV.21, Kanakaśaka is taken as one word by Kern who translates it by 'gold-Scythians'.[1] The *Agni-purāṇa* (LV.16) locates the Śakas in the south-west of India. Apart from the Scythian rulers of North-western India, Śaka Kṣatrapas and Mahākṣatrapas of the lineages of Bhūmaka and Caṣṭana are known to have ruled over western India in the early centuries of the Christian era. Śakas are mentioned in a large number of inscriptions found in western Indian caves, and in the Allahabad pillar inscr. they are said to have paid homage to Samudragupta. Thus Śaka rule appears to have continued in the north-west down to the fourth century A. D. In western India, the Śakas were supplanted by Candragupta II Vikramāditya in the last decade of the fourth or early in the fifth century A. D.

168. *Sālva* (*v. l.* Śālva, V.76; XVI.20; XVII.13, 18), a country, and the people of it, in Madhyadeśa (XIV.2). In literature, Sālva is associated with Matsya.[2] Therefore, these two geographical divisions must be contiguous. Sālva comprised the territory extending from Alwar to north Bikaner[3] with Sālvapura, probably modern Alwar, as its principal city.

169. *Samataṭa* (XIV.6), a country in the eastern division. The earliest epigraphic reference to Samataṭa is to be found in Samudragupta's Allahabad *praśasti* where it is associated with Ḍavāka (Nogong district of Assam) and Kāmarūpa (Assam).[4] According to Cunningham, Samataṭa corresponded to the whole of the Delta or the triangular tract between the Bhāgīrathī river and the main stream of the Gaṅgā.[5] In the time of the Khaḍga rulers, Karmmānta (modern Kamta near Comila) was the capital of Samataṭa.[6] The inclusion in Samataṭa of the region round Comilla is proved by the Baghaura inscr. of Mahīpāladeva which mentions Bilakinda (the village of Bilkendui near Baghaura in Comilla district) as a village situated in Samataṭa.[7] We find the kings of Karmmānta granting land at Asrafpur in

1. *JRAS*, 1871, p. 85, fn. 1.
2. cg. *Gopatha-Brāhmaṇa*, I.2.9.
3. Cf. Agrawala, *India as Known to Pāṇini*, p 55.
4. *CII*, III, p. 8, line 22.
5. *CAGI*, p. 576.
6. *JASB*, 1914, p. 87.
7. *Ibid*, 1915, pp. 17-8.

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the Narayanganj subdivision of the Dacca district. The kingdom of Samataṭa thus seems to have comprised the districts of Tipperah, Noakhali, Barisal, Faridpur and the eastern half of the district of Dacca.[1]

170. *Saṅkhyāta* (XIV.2), a people in Madhyadeśa.

171. *Śāntika* (XIV.20), a people in the western division.[2]

172. *Śaradhāna* (XIV.26), a people in the northern division.

173. *Saurikīrṇa* (XIV.11), a people in the southern division. Kern[3] and, following him, Fleet[4] take Sauri and Kīrṇa to be two separate words. But Utpala regards it as one word. According to Kern, Sauris are the Sorae or Colas of Ptolemy.[5]

174. *Śibi* (*v.l.* Śivi, IV.24; V.67; XI.59; XVI.25; XVII. 19), the Siboi of Alexander's historians, are probably the same as the Śivas of the *Ṛgveda* (VII. 18.7). Varāhamihira locates Śibika, a pleonastic form of Śibi, in the southern division (XIV.12). The Śibis are known to have changedtheir settlements from time to time. Śivas, who are mentioned in the *Ṛgveda* along with the Alinas. Pakhtas, Bhalānasas and Viṣāṇins as defeated by king Sudās, lived on or about the Indus.[6] The Jātakas know of two Śibi settlements[7] having their caitpals at Ariṭṭhapura (Ariṣṭapura), probably identical with Ptolemy's Aristobothra to the north of the Panjab,[8] and at Jetuttara, Jattaraur of Alberuni (I.202), modern Nagari, 11 miles north of Chitor.[9] The town of Śibipura mentioned in a Shorkot inscr. has been identified with Shorkot in the Jhung district of the Panjab.[10] The Siboi of Alexander's historians are to be located in this region.[11] The presence of a Śibi settlement in the Swat

1. *JASB*, 1914, p. 88.
2. According to some, the Satiya of Aśokan edicts corresponds to our Śāntika. Vide *PHAI*, p. 330, fn. 2.
3. *JRAS*, 1871, p. 83, fn. 5.
4. *IA*, XXII, p. 189.
5. *Ptolemy*, pp. 64. 65, 162, 185.
6. Macdonell and Keith, *Vedic Index*, II, pp. 381-2.
7. *Jātaka* Nos. 527, 547; *Mehta*, p. 440.
8. *Ptolemy*, p. 142; *Dey*, p. 11.
9. *CASR*, VI, p. 196. For coins of Śibi Janapada from Nagari, (ancient Madhyamikā) see, Allan, *Catalogue of Coins of Ancient India*, p. cxxiii.
10. *EI*, XVI, p. 16. It is evidently the same as Patañjali's Śivapura (*Mahābhāṣya* on Pāṇini, IV. 2.104).
11. McCrindle, *Invasion of India by Alexander the Great* p. 232.

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valley is rendered probable by the location of the scene of the *Śibi-Jātaka* there by Fa-hian.[1] None of these settlements satisfies its location in the south. Our author seems to have intended the Śivis on the banks of the Kāverī mentioned in the *Daśakumāracarita* (VI).

The Śibis of the Panjab also appear to have been known to Varāhamihira, for he associates them with the Mālavas, Taxila (XVI.26), Arjunāyanas and Yaudheyas (XVII.19). In the *Mahābhārata* they are associated with the Trigartas and Mālavas as conquered by Nakula and as paying tribute to Yudhiṣṭhira (Sabhā, 32.7; 52.11).

175. *Siṁhala* (XI.60), allotted to the southern division (XIV.15), is Ceylon. Ceylonese pearls were highly valued (LXXX.2, 3).

176. *Sindhu* (IV.23; XVIII.6) is called a *viṣaya* in LXVIII.11. It is often mentioned in association with and before Sauvīra (*Sindhu-Sauvīra*, IX.19; X.6; XIV.17, 33). It is usually identified with Sindh-Sagar Doab, the region between the Jhelum and the Indus.[2] But Yaśodhara, the commentator of the *Kāmasūtra*, clearly states that Sindhudeśa lay to the west of the Indus.[3] Yuan-Chwang's Sin-tu was also situated on the west side of the Indus.[4] The inhabitants of Sindhu-viṣaya are called *Saindhava* (V.71). Utpala takes Sindhu-Sauvīra to be one name and in all likelihood it formed one geographical division. In the Junagadh inscr. of Rudradāman I also Sindhu-Sauvīras are mentioned together. Varāhamihira locates Sindhu-Sauvīra in the south-west (XIV.17, 33). According to some, Sauvīra comprised only southern Sindh and Sindhu and Sauvīra together correspond to modern Sind.[5] But this view is opposed to the clear statement of Alberuni (I.302) that Sauvīra denoted Multan and Jahravar, thus making Sauvīra extend as far north as Multan. The forms Sindhu-

1. *Yuan Chwang*, I, p. 235.

2. V.S. Agrawala, *India as Known to Pāṇini*, p. 50.

3. *Saindhavānām=iti, Sindhunāmā nadas=tasya paścimena Sindhudeśas=tatra bhavānām.*

4. *PHAI*, pp. 619-21.

5. This view is expressed by Jayachandra Vidyalankar (*JBORS*, XV, pp. 47-63) and ably criticised by Raychaudhuri, *PHAI*, pp. 618 ff.

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Sauvīraka (IX.19), Sauvīraka (IV.23) and Suvīra (V.79) also occur.

177. *Śītaka* (XIV.27), a people in the northern division.

178. *Śmaśrudhara* (XIV.9), a people in the south-east division.

179. *Strīrājya* (XVI.6), a 'kingdom of women', in the north-west division (XIV.22). Yuan Chwang knows an amazonian kingdom in the Himalayan valley of the Sutlej. Dey states that it was 'a country in the Himalaya immediately on the north of Brahmapura, which has been identified with Garwal and Kumaun.'[1] Atkinson informs us that a woman named Pinchiu ruled over the Nu-wang tribe in Eastern Tibet, and the people in each successive reign chose a woman for their sovereign.[2] Vātsyāyana (II.5.27) also mentions Strīrājya, which Yaśodhara places to the west of Vaṅga (*Vaṅgadeśāt paścimena Strīrājyam*). The *Agni-purāṇa* (LV.17) mentions it as a country in the west of India.

180. *Śūdra* (IX.40; XVI.31), a people in the south-west division (XIV.18). In the *Mahābhārata* (II.32.10; IX.37.1), the Śūdras are associated with the Ābhīras and are located in West Rajputana near Vinaśana. Alexander's historians call them Sodrai who lived between the Indus and the Sutlej above the junction of the five rivers near Mithankot and south of the district of Multan. They had their capital on the Indus.[3]

181. *Suhma* (V.37; XVI.1), a people and their country in the eastern division (XIV.5). Nīlakaṇṭha, the commentator of the *Mahābhārata*, identifies it with Rāḍhā to the west of the Gaṅgā.[4] Kālidāsa, too, places Suhma to the west of Vaṅga which lay to the east of the Gaṅgā.[5] According to Daṇḍin (*Daśakumāracarita* IV), Dāmalipti or Tāmralipti, modern Tamluk in the Midnapur district, was included in the Suhma country.

182. *Śūlika* (IX.15,[6] 21; X.7; XVI.34), a people in the

1. *Dey*, p. 194.
2. *Ibid.*
3. McCrindle, *Invasion of India by Alexander the Great*, p. 236.
4. *Dey*, p. 203.
5. *Raghuvaṁśa*, IV.35-36.
6. Kern reads *Śrūlika* but regards Śūlika as preferable (*JRAS*, 1871, p. 58, fn. 1).

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north-west division (XIV.23). Śūlikas are also called Cūlikas in the Purāṇas. According to the *Matsya-purāṇa*, the country of the Śūlikas is watered by the river Cakṣu (Oxus). Gauthiot identifies them with the Sogdians living to the north of the Oxus, and P. C. Baghchi connects the Śūlikas (Sogdians) with the Prakṛit called Cūlikā Paiśācī and with the Cālukyas of the Deccan.[1] A branch of the Śūlikas probably migrated to Orissa and in the Haraha inscr. of Maukhari Iśānavaraman they are mentioned after Andhra and before Gauḍa.[2] They are to be identified with the Śulkis of Orissa and are probably the same as the Śaulikas, a people in the south-east divison (XIV.8), mentioned by our author.[3]

183. *Śūrasena* (*v.l.* Sūrasena, V.35, 69; IX.17; XI.54; XVII.13, 22; LXVIII.26), a people in Madhyadeśa (XIV.3). The pleonastic form of Śūrasena is met with in IX.11. The Śūrasenas lived in the region round Mathurā. The classical writers refer to them as Śaurasenoi and their towns Mathurā (Methora) and Kṛṣṇapura (Cleisobora).

184. *Surāṣṭra* (IV.22; V.79; X.6; XXXII.19; LXVIII. 11), a country in the south-west division (XIV.19), corresponds to the Kathiawad peninsula. The derivatives *Saurāṣṭrika* (V.68; XXXII.11) and *Saurāṣṭra* (IX.19; XVI.17, 31) are also met with.[4] The name still survives in the modern Surat.

185. *Śūrpakarṇa* (XIV.5), literally 'people having ears like winnowing baskets', in the eastern division.

186. *Suvarṇabhū* (XIV.31), a country allotted to the north-east division, is sometimes identified with Ptolemy's Golden Khersonese or the delta of the Irawadi forming the province of Pegu. But it should be taken in a much wider sense including also Malaysia and the islands of eastern archipelago[5].

1. P.C. Baghchi, Śūlikā, Cūlikā and Cūlika Paiśācī, *JDL*, XXI,pp. 1-10.
2. *EI*, XIV, p. 116, verse 13.
3. For the identification of the Śūlikas of Haraha inscr. with the Cālukyas, see *JDL*, XXI, pp. 1-10; *PHAI*, pp. 602-3.
4. For some epigraphic references, cf. *SI*, pp. 172, 174, 196; *CII*, III, p. 59. The author of the *Periplus* calls it Syrastrene (41).
5. *Ptolemy*, p. 198, Kern (*JRAS*, 1871, p. 86, fn. 5), however, remarks, 'in all likehood a mythical land; with Ptolemy it is called Chryse (cf. Lassen, *Altert*, iii.242), which is not to be confounded with the real island and peninsula Chryse. The latter is held to be Malakka; the Golden Island, however, the existence of which is denied by Lassen (*Altert.* iii.247), but sufficiently attested not only by the Greeks, but also in the *Kathāsaritsāgara* (X.54, 99; 56, 62; 57, 72; XVIII.123, 110), cannot be but Sumatra, including perhaps, Java.'

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187. *Śvamukha* (XIV.25), 'a people with dog-like faces', in the northern division.

188. *Śveta* (XVI.38). See Hūṇas above.

189. *Śyāmāka* (XIV.28), a people in the northern division. Lévi identifies it with Chö-mï of Sungyun, Pei-che and T'ang-chou and with Chang-mi of Yuan Chwang which Chavannes and Vivien de Saint Martin have identified with Chitral.[1]

189(a). *Tāla* (XIV.22), a people in the north-west division.

190. *Taṅgaṇa* (IX.17; X.12; XVI.6; XVII.25; XXXII.15), a people in the north-east division (XIV.29), are Ptolemy's Tanganoi whose territory stretched from the Ramganga river to the upper Sarayū. They were one of the aboriginal tribes which the Āryans, while pushing their conquests to the east of the Gaṅgā and Yamunā, drove back into the Himalayas or towards the Vindhyas. The Ṭank or Ṭonk Rajputs of Rohilkhand and the Dangayas spread over the entire length of the Vindhya mountains and the adjacent territory from the southern borders of the ancient Magadha to the heart of Malwa to the north of the lower Narmadā 'are the present representatives of the Taṅgaṇas.'[2]

191. *Tārakṣiti* (XIV.21), a country or place in the western division.

192. *Taskara*[3] (XVI.4), according to Utpala, is the name of a country or people.

193. *Timiṅgilāśana* (XIV.16), literally a 'whale-eating people', in the southern division. Utpala regards it as one name. Kern is evidently wrong in observing that 'the commentator sees two words in it in the compound, viz. Taimiṅgilas and Sanas or Śanás.'[4] The *Mahābhārata* (II.31.69) speaks of Timiṅgila as a southern king defeated by Sahadeva. Dey proposes to identify it with Diṇḍigala valley in the district of

1. *JUPHS*, XV, Pt. II, p. 38.
2. *Ptolemy*, pp. 210-11.
3. Not mentioned by Fleet.
4. *JRAS*, 1871, p. 84, fn. 3.

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Madura in Madras. He thinks that it is Tangala and Taga of Ptolemy.[1]

194. *Trigarta* (IX.19), a country in the northern division (XIV.25) The people of Trigarta are referred to as *Traigarta* (X.11; XVI.21; XVII.16) and *Traigartaka* (IV.24). Trigarta denotes the country drained by the three rivers, Ravi, Beas and Sutlej, and comprised the whole of the upper Doab between the Ravi and the Sutlej. Hemacandra in his *Abhidhānacintāmaṇi* (IV.24) identifies Trigarta with Jālandhara (*Jālandharās=Trigarttās=syuḥ*)[2] and this seems to be supported by epigraphic evidence.[3]

195. *Trinetra* (XIV.31), literally a 'three-eyed people', in the north-east division.

196. *Turagānana* (XIV.25), literally a 'horse-faced people', in the northern division. See Aśvamukha above.

197. *Tuṣāra* (XVI.6), a people in the north-west division (XIV.22). The Tuṣāras are Ptolemy's Tochari who are said to be under subjugation to the Bactrians and are described as 'the most distinguished.'[4] According to Stein, the Turkhāra (Tuṣāra) country comprised the upper Oxus valley including Balkh and Badakhshan.[5] It corresponds to the Tukharistan of the Arab writers.

198. *Uddehika* (XIV.3), a people and their country in Madhyadeśa. Alberuni (X.300) tells us that Uddehika was situated near Bazana which was twenty *farsākh* (1 *farsākh*=4 miles)=eighty miles in a south-western direction from Kanauj, 60 *farsākh* north-west of Anhilwara, and 20 *farsākh* to the north of Maiwar. We are further told that Bazana was the capital of Gujarat (ancient Gurjaradeśa) and 'is called Narayan by our people. After it had fallen into decay the inhabitants migrated to another place called Jadura (?).'[6] Coins bearing the inscription *Udehaki* in Brāhmī characters of the second century

1. *Dey*, p. 204; *Ptolemy*, p. 184.
2. *CASR*, V. pp. 145, 148.
3. *EI*, I, pp. 102, 116.
4. *Ptolemy*, p. 324.
5. Stein, *Rājatarangiṇī* I, p. 136; *Dey*, p. 207.
6. *Alberuni*, I, 300, 202, 205. Bazana is a conjectural reading (*ibid*, II, p. 392). Fleet (*IA*, XXII, p. 192) wrongly gives the distance from Kanauj to Bazana as twenty-eight *farasakh*.

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B. C. evidently belong to our Uddehikas.[1] One of these coins mentions an Uddehika king named Sūryamitra. Cunningham identified Alberuni's Bazana or Narayan with Narayanpur, a small town in the erstwhile Alwar state, 10 miles to the north-east of Bariat.[2] S. K. Dikshit proposes to identify Bazana with Naraina in the Sambhar district of Rajasthan, 70 miles south-west of Bairat, and Uddehika, capital of the Uddehikas, with Bari Udai in the former Jaipur State, 40 miles north-east of Rairh, and about 92 miles east-south-east of Naraina.[3]

199. *Uḍra* (V.35; XVI.1; XVII.25), a country and its people in the eastern division (XIV.6). The derivative *Auḍrā* occurs in V.74. Uḍra or *Auḍra* is the original of Orissa. But the Uḍras could not have occupied the whole of Orissa for parts of it were occupied by the Utkalas and Kaliṅgas. It has been suggested, therefore, that ancient Uḍra comprised Western Midnapur, Manbhum, Eastern Singhbhum and South Bankura. At a later time, the Uḍras overran the Utkalas and the Kaliṅgas and imparted their name to the whole of Orissa.[4]

200. *Udumbara* (V.40; XVI.3), a country the people of which called Audumbara are assigned to Madhyadeśa (XIV.4). As indicated by the find-spots of their coins, the Udumbara territory comprised Pathankot in Gurdaspur district, the eastern part of the Kangra valley and the Hoshiarpur district.[5]

201. *Upajyotiṣa* (XIV.3), a people or country in Madhyadeśa.

202. *Upavaṅga* (XIV.8), a country in the south-east division, has been identified with the central portion of the eastern part of the delta of the Gaṅgā.[6]

203. *Urdhvakaṇṭha* (XIV.8), literally a people with high throats,"[7] in the south-east division.

204. *Uśinaras* (IV.22; XVI.26) had their territory to the north of the Kurus, probably between the Chenab and the Ravi. The king of the Uśīnaras is called *Auśīnara* (XI.55).

1. *BMC, AI,* pp. cxli, 240, pl. XXXV, 16-17; *JNSI,* III, p. 47 f.
2. *CAGI,* p. 387 f.
3. S. K. Dikshit, Uddehika and Bazana, *IC,* VII, pp. 361-63.
4. *CAGI,* p. 733.
5. *BMC, AI,* Introduction, p. lxxxvii.
6. *Dey,* p. 211.
7. *Cambridge History of India,* I, p. 75.

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205. *Utkala* (XIV.7), a people in the eastern division. Kālidāsa (*Raghuvaṁśa*, IV.38) places Utkala to the south of the river Kapiśā which has been identified with the Kasai flowing through the Midnapur district of Bengal. The Bhuvaneśvara stone inscr. of Narasiṁha I refers to Ekāmra, modern Bhuvaneśvara, as situated in Utkalaviṣaya.[1] It shows that the Puri district was included in Utkala. Thus Utkala comprised the tract from Balasore to Lohardaga and Sarguja.[2]

206. *Uttara-Pāṇḍya* (XVI.10). See Pāṇḍya above.

207. *Vaiśya* (X.7), a people in the western division (XIV.21).

208. *Vaṅga* (V.72, 73, 79; IX.10; X.14; XVI.1; XVII. 18, 22; XXXII.15), a country and its people in the south-east division (XIV.8). The ruler of Vaṅga is called *Vāṅga* (XI.60). Kālidāsa locates the Vaṅgas in the delta formed by the Gaṅgā and the Brahmaputra (*Raghuvaṁśa*, IV.36). Vaṅga is one of the four traditional divisions of Bengal bounded by the Brahmaputra on the west, the Gaṅga on the south, the Meghna on the east and the Khasi hills on the north.[3] According to Pargiter, it comprised the districts of Murshidabad, Nadia, Jessore, parts of Rajshahi, Pabna and Faridpur.[4]

209. *Vāricara* (XIV.14), meaning mariners, in the southern division. Kern thinks the Vāricaras may be the pirates of the Greek writers.[5]

210. *Vasātis* (XVII.19) of the northern division (XIV. 25) are the Ossadioi of Alexander's historians, settled in the region between the Indus and the Jhelum. comprising Rawalpindi.[6] Vāsāti is also mentioned in the *Mahābhāṣya* (on Pāṇini, IV.2.52) and the *Mahāmāyūrī* (27).

211. *Vāṭadhāna* (XVI.21), a people in the northern division (XIV.26). In the *Mārkaṇḍeya-purāṇa* (Ch. 51), Vāṭadhānas are mentioned between the Bāhlikas and Ābhīras. According to Pargiter, Vāṭadhāna was a country on the east side of the Sutlej, southwards from Ferozepur. Dey[7] identifies

1. Law, *Historical Geography*, p. 197.
2. *JASB*, LXVI (1897), p. 85; *CAGI*, p. 733.
3. S. N. Majumdar Sastri in *CAGI*, p. 730.
4. *JASB*, 1897, p. 85.
5. *JRAS*, 1871, p. 83 and note.
6. Mc Crindle, *Invasion of India by Alexander*, p. 156 note.
7. Pargiter, *Mārkaṇḍeya-purāṇa*, p. 312 note.

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B. C. evidently belong to our Uddehikas.[1] One of these coins mentions an Uddehika king named Sūryamitra. Cunningham identified Alberuni's Bazana or Narayan with Narayanpur, a small town in the erstwhile Alwar state, 10 miles to the north-east of Bariat.[2] S. K. Dikshit proposes to identify Bazana with Naraina in the Sambhar district of Rajasthan, 70 miles south-west of Bairat, and Uddehika, capital of the Uddehikas, with Bari Udai in the former Jaipur State, 40 miles north-east of Rairh, and about 92 miles east-south-east of Naraina.[3]

199. *Uḍra* (V.35; XVI.1; XVII.25), a country and its people in the eastern division (XIV.6). The derivative *Auḍrā* occurs in V.74. Uḍra or *Auḍra* is the original of Orissa. But the Uḍras could not have occupied the whole of Orissa for parts of it were occupied by the Utkalas and Kaliṅgas. It has been suggested, therefore, that ancient Uḍra comprised Western Midnapur, Manbhum, Eastern Singhbhum and South Bankura. At a later time, the Uḍras overran the Utkalas and the Kaliṅgas and imparted their name to the whole of Orissa.[4]

200. *Udumbara* (V.40; XVI.3), a country the people of which called Audumbara are assigned to Madhyadeśa (XIV.4). As indicated by the find-spots of their coins, the Udumbara territory comprised Pathankot in Gurdaspur district, the eastern part of the Kangra valley and the Hoshiarpur district.[5]

201. *Upajyotiṣa* (XIV.3), a people or country in Madhyadeśa.

202. *Upavaṅga* (XIV.8), a country in the south-east division, has been identified with the central portion of the eastern part of the delta of the Gaṅgā.[6]

203. *Urdhvakaṇṭha* (XIV.8), literally a people with high throats,"[7] in the south-east division.

204. *Uśinaras* (IV.22; XVI.26) had their territory to the north of the Kurus, probably between the Chenab and the Ravi. The king of the Uśīnaras is called *Auśīnara* (XI.55).

1. *BMC, AI*, pp. cxli, 240, pl. XXXV, 16-17; *JNSI*, III, p. 47 f.
2. *CAGI*, p. 387 f.
3. S. K. Dikshit, Uddehika and Bazana, *IC*, VII, pp. 361-63.
4. *CAGI*, p. 733.
5. *BMC, AI*, Introduction, p. lxxxvii.
6. *Dey*, p. 211.
7. *Cambridge History of India*, I, p. 75.

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it with Bhatnair.[1] In the *Mahābhārata* (II.32,8), mention is made of a Vāṭadhāna settlement near Madhyamikā, modern Nagari in Rajputana.[2]

212. *Vatsas* (X.5; XVII.18, 22), assigned to Madhyadeśa (XIV.2) and to south-east division (XIV.8), are an ancient people whose country lay near Allahabad with Kauśāmbī, modern Kosam, on the Yamunā, for its capital.

213. *Vidarbha* (XIV.8), in the south-east division, included modern Berar and the tract between the rivers Varadā and Wainganga. The *Agni-purāṇa* (LV.13) also mentions it as a country in the south-east Bhāratavarṣa. The people of Vidarbha are referred to as *Vaidarbha* (IX.27).

214. *Videha* (V.41, 71; XVI.11) corresponded roughly to Tirabhukti (modern Tirhut) in north Bihar and comprised the country from Gorakhpur on the Rapti to Darbhanga, with Kosala on the west and Aṅga on the east. On the north it approached the hills, and in the south it was bounded by the small kingdom of Vaiśālī.[3] Mention is also made of its capital Mithilā. The people of Videha are called *Vaideha* (IX.13, 21; XVI.15) and *Vaidehaka* (XXXII.22).

215. *Vidyādharas* (IX.27, 38) are a class of demigods. Kern renders the name by 'the inhabitants of Fairy-land' and compares them with the wise elves of the Teutonic mythology.[4]

216. *Viṭakas* (XVI.2) are, according to Kern, the same as the Utsavasaṅketas and Lampākas of the great epic.[5]

217. *Vokkāna* (XVI.34), a place and its people in the western division (XIV.20). It is referred to in the *Mahāmāyūrī* (I.99) and has been identified with Wakhan.

218. *Vṛṣadvīpa* (XIV.9), an island in the southern division.

219. *Vyāghramukha* (XIV.5), literally a 'people with faces like that of a tiger', in the eastern division.

220. *Vyālagrīva* (XIV.9), literally a 'people with necks like that of a serpent', in the south-east division.

221. *Yaudheya* (V.40, 67, 75; XVI.21; XVII.19), a people

1. *Dey*, p. 27.
2. Cf. Motichandra, *Geographical and Economic Studies*, pp. 27-8, 31-2.
3. *JASB*, 1897, p. 89.
4. *JRAS*, 1871, p. 60, fn. 2.
5. *Ibid*, p. 231, fn. 1.

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in the northern division (XIV.28). The pleonastic form *Yaudheyaka* is also met with (IX.11; XI.59). Yaudheyas are first mentioned in Pāṇini's *Aṣṭādhyāyī* (V.3.117). Their coins ranging from second century B. C. to third-fourth century A. D. have been found in Eastern Panjab and in the region between the Sutlej and the Yamunā. They lived on both banks of the Sutlej along the Bahawalpur frontier which is known as Johiyawar,[1] a name still reminding us of the Yaudheyas. The Johiya Rajputs are their present descendants. In the second century, they were vanquished by the Śaka Mahākṣatrapa Rudradāman I[2] and about two centuries later, they had to pay tribute to the Gupta monarch Samudragupta.[3]

222. *Yavanas* (IV.22; V.78, 80; IX.21, 35; X.6, 15, 18; XIII.9; XVI.1; XVIII.6), Greeks, are located in the southwest division (XIV.18). Probably some Greek settlement near Nasik is intended. The Yavanas are referred to in several epigraphic records in western Indian caves, particularly at Nasik.[4] In II.15, Yavanas are styled Mlecchas and a reference is made to their proficiency in astrology.

223. *Yugandhara* (XXXII.19). The *Mahābhārata* (Vanaparvan, 129.9) speaks of it as a prosperous *janapada* in the Yamunā region (*Yamunām=anu*) and associates it with Sālva (Virāṭaparvan, I.13). Its location by Dr. Agrawala in Ambala district between the Sarasvatī and the upper Yamunā, where Jagadhari probably is a relic of the old name, is quite plausible.[5]

1. *CASR*, XIV, p. 114.
2. *SI*, p. 172, line 12.
3. *CII*, III, p. 8, l.22.
4. *SI*, p. 171, l.8; p. 197, l.5; *ASWI*, IV, 90-5, 115.
5. *India as known to Pāṇini*, pp. 57-8.

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IV

LOCALITIES

1. *Alaka* (XI.58). The text gives '*Ikṣvākur=Alakanāthaḥ*', i. e. Ikṣvāku and the lord of Alaka. The feminine Alakā would violate the metre; but Utpala says, '*Alakā nāma nagarī, tan=nāthaḥ*'. Alakā is the mythical town of Kubera on Mt. Kailāśa, so beautifully described by Kālidāsa in his *Kumārasambhava* and *Meghadūta*.

2. *Ayodhyā* (IV.24) is situated on the Sarayū in the Fyzabad district of Uttar Pradesh. Varāhamihira refers to the rulers of Ayodhyā (*Āyodhyakān pārthivān*).

3. *Baladevapattana* (XIV.16), a town in the southern division, is, according to Kern, 'the Balaipatna of Ptolemy, so that the reading Palaipatna, preferred by Lassen, is proved to be a false form.'[1] It is identical with the town of Balaipattam in Malabar. The *Periplus* mentions it as Palaepatmae. Its identification with modern Dabhol as suggested by Schoff[2] does not appear to be probable.

4. *Bharukaccha* (XVI.6; LXVIII.11) a town in the southern division (XIV.11), is the the Greek Barygaza, modern Broach.

5. *Bhogaprastha* (XIV.25), in the northern division. From the analogy of the name Indraprastha it appears to be the name of a city.[3]

6. *Bhogavardhana* (XVI.12). The verse containing this name is not commented upon by Utpala and, therefore, appears to be spurious. The *Mārkaṇḍeya-purāṇa* (LVII.48-9) places Bhogavardhana in the southern division. It is mentioned in inscriptions from Bharhut[4] and Sanchi[5] and may be identified with Bhokardan in the Aurangabad district of Maharashtra.

7. *Bhūtapura* (XIV.27), a city in the northern division.

8. *Brahmapura* (XIV.30), a city in the north-east division. The *Agni-purāṇa* (LV.20) also locates it in the north-east of

1. *JRAS*, 1871, p. 84, fn. 2.
2. *Periplus*, pp. 43, 201.
3. For place-names ending in *prastha*, see Agrawala, *op. cit.* p. 67.
4. Barua and Sinha, *Barhut Inscriptions*, p. 15; *Lüders' List*, No. 797.
5. *Ibid*, Nos. 264, 266; 295, 296, 373, 572.

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Bhāratavarṣa. M. Julien renders Yuan Chwang's Po-lo-ki-mo-pu-lo as Brahmapura, and Cunningham identifies it with Variat-pattan on the Ramganga river, about 80 miles in a direct line from Madawar. Yuan Chwang mentions it as a country which lay in the Garhwal and Kumaun region.[1]

9. *Candrapura* (XIV.5), a city in the eastern division.

10. *Daśapura* (XIV.12) in the southern division is present Mandasor.

11. *Dharmapaṭṭana* (XIV.14), a city in the southern division. It may be the same as Dhamavaḍhana mentioned in Sanchi inscriptions. Another possible identifiation is with Dharmapuri in the Salem district of the Madras State.

12. *Gajāhvaya* (XIV.14) in Madhyadeśa is another name of Hastināpura, the ancient capital of the Kurus, in Meerut district, Uttar Pradesh.

13. *Gayā* (*YY*, IV.47). At Gayā *piṇḍas* were offered to manes.

14. *Girinagara* (XIV.11) in the southern division is modern Junagadh. Originally, the town of Junagadh itself was called Girinagara,[3] but this name was subsequently transferred to Mt. Girnar which was anciently known as Urjayat or Raivataka.

15. *Girivraja* (X.14). Two towns of this name are known —(1) Girivraja, capital of Magadha, represented by modern Rajgir in Bihar, and (2) Girivraja, Kekaya capital, now represented by Jalalpur or Girjak in the Panjab.[4]

16. *Gonarda* (IX.13; XXXII.22), a locality in the southern division (XIV.12). The *Mārkaṇḍeya-purāṇa* (LVIII.20-9) also mentions Gonarda among the countries of southern India. In the *pārāyaṇa* incorporated in the Pali *Suttanipāta*, Gonarda (Gonaddha) is mentioned as an intermediary step between Ujjayinī and Vidiśā. The locality, however, cannot be precisely identified.[5] In his *Mahābhāṣya*, Patañjali often styles himself *Gonardīya*, i.e., one hailing from Gonarda.

1. *CAGI*, p. 407.
2. *Lüders' List* Nos. 234, 351.
3. *Lüders' List*, Nos. 165, 166; *CII*, III, p. 57.
4. *CAGI*, p. 188.
5. For Gonarda, see S. Lévi (Engl. transl. by D. C. Sircar) in *Sir Asutosh Mookerjee Silver Jubilee Volume*, III (Orientalia), pp. 197-205; D. C. Sircar, *op. cit.*, pp. 206-216; *JAHRS*, IX, pp. 1 ff.

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17. *Hemakuḍya*[1] (*v. L.* Hemakūṭa, -kūṭya, -kuṇḍya, XIV. 9), a place in the south-east division.

18. *Kālājina* (*v. l.* Kālañjana, XIV.11), a place in the southern division. Fleet[2] points out the possibility of its being identical with Kālañjara which is sometimes wrongly spelt in inscriptions as Kālāñjana.

19. *Kālakoṭi* (XIV.4), a locality in Madhyadeśa.

20. *Kāñcī* (XIV.15) in the southern division is the present Conjeeveram on the Palar, 43 miles south-west of Madras. According to Burnell, Skr. Kāñcī is a mistranslation of the Dravidian Kañji.[3]

21. *Kaṇṭakasthala* (XIV.10), a place in the south-east division. It should be identified with ancient Kaṇṭakaśaila, modern Ghaṇṭaśāla where a number of early Buddhist inscriptions have been found.[4]

22. *Kāntipura* (XVI.11) cannot be identified definitely. Cunningham identifies Kāntipurī with Kotwal, 25 miles north of Gwalior.[5] Wright holds that the ancient name of Kathmandu in Nepal was Kāntipura or Kāntipurī.[6] K. P. Jayaswal identified the Nāga Capital Kāntipurī with Kantit in the Mirzapur District of U. P.,[7] while others identify it with Kutwar in the Morena District of Madhya Pradesh.

23. *Kapiṣṭhala* (*v. l.* Kapiṣṭhaka, XIV.4) in Madhyadeśa is Kaithal in the Karnal district, Panjab. Some connect it with the Kambishtholoi of Arrian. Alberuni (I.206) calls it Kavital.

24. *Kārmaṇeya* (XIV.15), implied in *Kārmaṇeyaka* (a people in the southern division), is mentioned in inscriptions as Kārmaṇeya, Kamaṇīya, and Kammaṇijja, and is modern Kamrej in the former Baroda State.[8]

1. Kern gives Hemakūṭya in his text, but in translation (*JRAS*, 1871, p. 83, fn. 2) prefers Hemakuṇḍya for 'Parāśara exhibits the same form.'

2. *IA*, XXII, p. 180.

3. Burnell, *South Indian Palaeography*, p. x, fn. 2; *IA*, XXII, p. 180,

4. *EI*, XXVII, pp. 1 ff. Vide also my book *An Outline of Early Buddhism*, p. 97, n. 4.

5. *CASR*, II, p. 308.

6. *History of Nepal*, pp. 9, 154; *Dey*, under '*Kāntipurī*.

7. K. P. Jayaswal, *History of India*, pp. 29-30; H. V. Trivedi, *The Coins of the Nāgas of Padmāvati*, p. xxxvi.

8. *IA*, XVII, pp. 184 n., 198; XXII, p. 180.

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25. *Kāśī* (V.72; X.4, 13; XXXII.19), in the eastern division (XIV.7). *Kāśī-deśa* (XVII.25) denotes the country round Banaras. The word Kāśī when used in plural means the people of Kāśī (V.69). The king of Kāśī is called *Kāśīśvara* (IX.19), *Kāśipa* (XI.59) and *Kāśi-rāja* (LXXVII.1).

26. *Kauśāmbī* (XVI.3) is at present represented by the ruins of Kosam, a village on the left bank of the Yamunā about 30 miles from Allahabad.

27. Kollagiri (XIV.13) in the southern division is identified by Fleet[1] with modern Kolhapur which is mentioned as Kollagira in a Terdal inscr.[2] The *Mahābhārata* (Sabhāparvan, 31.68) speaks of Kolagiri as a mountain and of Kollagireya (Aśvamedhika, 83.11) as a country in the south conquered by Sahadeva.

28. *Kṛṣṇavellūra* (XIV.14), a place in the southern division. Kern seems justified in taking it as one word. Fleet, however, splits it up into Kṛṣṇa and Vellūra, the first, according to him, referring to the river Krishna, and the second being identical with Ellora, mentioned in inscriptions as Vallūra and Valūraka.[3] Fleet's view lacks plausibility, for Kṛṣṇa ends in short *a* and not longer *ā* as should have been the case if it were to refer to the river Krishna.

29. *Kuñjaradarī* (XVI.16), literally the elephants' cave or glen, a place in the southern division. Utpala explains Kuñjaradarī as Hastikhaṇḍā. It is situated on the boundary of Travancore and Tirunelveli districts.

30. *Madhyamikā* (XIV.2), implied in the word *Mādhyamikāḥ*, the inhabitants of Madhyamikā, in Madhyadeśa. It has been identified with Nagari near Chitor in Rajasthan.

31. *Marucīpaṭṭana* (XIV.15), a city in the southern division. As suggested by Kern, Maruci or Muraci or Marīci seems to be Muziris (transposed from Murizis) of the Greeks.[4] It is mentioned by the author of the *Periplus*[5] (Muziris) and

1. *IA*. XXII, p. 182.
2. *IA*, XIV, p. 23.
3. *IA*, XXII, pp. 182, 193. Vellūra may be identified either with Karle which is called Valuraka, Vāluraka and Valūraka in inscriptions (*Lüders' List*, Nos. 1099, 1100, 1109) or with Elur within the Godavari district of Andhra Pradesh.
4. *JRAS*, 1871, p. 83, fn. 9.
5. *Periplus*, pp. 44, 205.

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Ptolemy[1] and has been identified with Muyiri-koṭṭa near Cranganore on the Malabar Coast.

32. *Mathurā* (IV.26). The *Māthurakas* (XIV.3) are placed in Madhyadeśa. Varāhamihira refers to the eastern and western halves of Mathurā (XVI.17, 21).

33. *Mithilā* (X.14), a city in the eastern division (XIV.6), has been identified with Janakpur within the Nepal border.

34. *Nāsikya* (XVI.12), in the southern division (XIV.13), is modern Nasik. The form Nāsika appears in Ptolemy[2] and in some epigraphic records at Bedsa and Nasik.[3]

35. *Paraloka* (LXXX.2, 4), celebrated for its pearl-fisheries, may be the same as the Paralia of the *Periplus*, derived from Purali, an ancient local name for Travancore,[4] or as Ptolemy's Paralia which 'designated exclusively the sea-board of the Toringoi.'[5]

36. *Prabhāsa* (XVI.32) is Prabhāsapaṭṭan, a famous place of pilgrimage, near Dvārakā. It is described as a *puṇya-tīrtha* in a Nasik cave inscription of the time of Nahapāna.[6]

37. *Prayāga* (XI.35), Prayag near Allahabad.

38. *Puṣkalāvatī*, as implied in *Puṣkalāvata* (XIV.26), 'the inhabitants of Puṣkalāvatī, in the northern division, has been identified with Charsadda, about 17 miles north-east of Peshawar. The pleonastic form *Puṣkalāvataka* occurs in XVI.26.

39. *Sāketa* (XIV.4), a town in Madhyadeśa, is generally supposed to be just another name for Ayodhyā; but as both these cities are mentioned as existing in Buddha's time, Rhys Davids suggests that they were possibly adjoining towns like London and Westminster.[7]

40. *Siṁhapura* (V.42), as implied in *Siṁhapuraka*, the

1. *Ptolemy*, p. 51.
2. *Ibid*, p. 152.
3. *ĀSWI*, IV, pp. 89, 98.
4. *Periplus*, pp. 44, 46, 234. But Schoff (p. 234) remarks, 'Paralia, to the author of the *Periplus*, is the coast-line below the Travencore backwaters, around Cape Comorin, and as far as Adam's Bridge : comprised within the modern districts of Travencore and Tinnevelly.'
5. *Ptolemy*, p. 54, 64.
6. *Lüders' List*, No. 1131.
7. Rhys Davids, *Buddhist India*, p. 20.

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inhabitants of Siṁhapura. Yuan Chwang mettions a town named Seng-ho-pulo (I.2, 49) which Cunningham and Stein identify with the present Ketas, 'on the north side of the Salt Range, at 16 miles from Pind Dadan Khan, and 18 miles from Chakowal, but not more than 85 miles from Shahdheri or Taxila.'[1] Another Siṁhapura is referred to in the Komarti plates of Caṇḍavarman,[2] Brihatposhṭha grant of Umāvarman,[3] Belva grant of Bhojavarmadeva[4] as also in the *Mahāvaṁsa* (VI 35 ff.) and is generally identified with Singupuram between Chicacole and Narasimhapeta.

41. *Sirindhra* (XIV.29), implied in *Sairindharā*, the people of Sirindhra, in the north-east division, is, according to Cunningham, represented by modern Sirhind.[5]

42. *Srughna* (XVI.20) is the same as the modern village of Sugh, on the old Jumna, near Jagadhari.[6]

43. *Śūrpāraka* (LXXIX.6), noted for its diamonds, is the same as Suppara of the *Periplus*[7] and Soupara of Ptolemy.[8] It is modern Sopara in the Thana district, 37 miles north of Bombay.

44. *Takṣaśilā* (X.8). Its inhabitants called *Tākṣaśila* (XVI.25) are placed in the northern division (XIV.26). The site of this great city is now occupied by the villages of Shahdheri, Sir-kap, Sir-sukh and Kacheha-kot at a short distance to the north-west of Rawalpindi.

45. *Tāpasāśrama* (XIV.15), literally 'the hermitages of the sages', in the southern division. Tāpasāśrama is sometimes identified with Pandharpur in Maharashtra. Dey connects it with Ptolemy's Tabasoi.[9]

46. *Tāmralipti* (X.14), the inhabitants of which called

1. *CAGI*, pp. 142-44; *Trubner's Oriental Records*, No. 249, p. 6. M. Vivien de St. Martin had identified it with the town of Sangahi, near Jhelum (*CAGI*, p. 143).
2. *EI*, IV, p. 144.
3. *Ibid.*, XII, p. 4.
4. *Ibid.*, p. 37; N. G. Majumdar, *Inscriptions of Bengal*, III, p. 19.
5. *CAGI*, p. 167.
6. *Ibid.*, pp. 395 ff. But cf. *Watters*, I, pp. 317-8.
7. *Periplus*, pp. 43, 197.
8. *Ptolemy*, p. 40.
9. *Bombay Gazetteer*, Vol. I, Pt. 1, p. 511, *Dey*, p. 204; *Ptolemy*, p. 158.

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Tāmraliptaka are placed in the eastern division (XIV.7), is Tamluk in the Midnapur district, Bengal.

47. *Tālikaṭa* (XIV.11), a city in the southern division, is doubtfully identified by Fleet with Talikot in the Bijapur district.[1] It seems more reasonable to identify it with Talkad or Talakkāḍu, the celebrated Gaṅga capital, 30 miles to the east by south of Mysore.

48. *Tripura* (V.39) or *Tripurī* in the south-east division (XIV.9) is modern Tewar in the Jabalpur district, Madhya Pradesh.

49. *Tumbavana* (XIV.15), in the southern division. Its identification with Tumain, 6 miles south of Ashoknagar in the Guna district of Madhya Pradesh, is placed beyond doubt by the Tumain inscription of the time of Kumāragupta dated G.116 (A. D. 435).[2] It is referred to in some early inscriptions from Sanchi.[3]

50. *Ujjayinī* (X.15; XII.14; LXVIII.30), Ujjain on the Śiprā. The ruler of Ujjayinī is referred to as *Aujjayinika* (XI.56).

51. *Ujjihāna* (XIV.2) in Madhyadeśa. According to N. L. Dey, Ujjihāna is the same as Uḍḍiyāna, which is corrupted into Urain in the district of Monghyr, near Kiul, containing several Buddhist remains.[4] This suggestion is untenable for in that case Ujjihāna should have been placed in the eastern division, not in Madhyadeśa. J. Ph. Vogel thinks that it is the same as Ptolemy's Ozoana and identifies it with Ujjhana on a bend of the river Rind about two miles to the east of Bhikdeo in the Derapur Tehsil of the Kanpur district,[5] while according to others it is represented by the town of Ujhani, in Badaun district of Uttar Pradesh.[6]

52. *Vaḍavāmukha* (XIV.17) in the south-west division. It is a mythical place which in the astronomical *siddhāntas* is the supposed abode of the dead at the South Pole.[7]

1. *IA*, XXII, p. 191.
2. *IA*, XLIX, p. 114; *EI*, XXVI, pp. 115 ff. Hemacandra in his *Pariśiṣṭa-parvan* (XII.2-3) locates Tumbavana in Avantideśa.
3. *Lüders' List*, Nos. 201, 202, 449, 450, 520.
4. *Dey*, pp. 208, 211.
5. *JRAS*, 1955, pp. 25-28.
6. *JUPHS*, XV, pp. II, p. 43n.
7. *JRAS*, 1871, p. 84, fn. 5.

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53. *Vanavāsī* (IX.15; XVI.6) in the southern division (XIV.12). Utpala invariably takes it as an appellative denoting the inhabitants of the forest and, following him, Kern says that this being a general term would comprehend all tribes living in forests, consequently Śabaras too.[1] But it is more reasonable to take it as a place-name and identify it with modern Banavasi in the North Kanara district.[2]

54. *Vardhamāna* (XVI.3; LXVIII.21; CIII.2), a city in the eastern division (XIV.7), is Burdwan in Bengal.[3]

55. *Vidiśā* (XVI.31), Besnagar near Bhilsa.

55. *Virāṭa* (XVI.12).[4] Fleet invites our attention to Virāṭakoṭa, an old name of Hangal in Dharwar.[5] But it is most probably identical with Bairat, 40 miles to the north of Jaipur.

57. *Yaśovatī* (XIV.28), a city in the northern division. Kern regards it as 'a mythical city of the Elves.'[6]

1. *JRAS*, 1871, p. 58, fn. 2. (on IX.15).
2. *IA*, XXII, p. 192.
3. *IA*, XXII, p. 193.
4. The verse in question is not included in his edition by Sudhakara Dvivedi and the absence of commentary thereupon would suggest it to be a later interpolation.
5. *IA*, XXII, p. 194.
6. *JRAS*, 1871, p. 86, fn. 2.

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Chapter III

RELIGION

1

BRĀHMAṆICAL RELIGION

Varāhamihira's works furnish us with an immensely rich store of data which may be profitably utilised in reconstructing a comprehensive account of the religious conditions obtaining during his age. It was a period of marked upheaval in the religious outlook of the people. Although heterodox sects like Buddhism and Jainism continued to find favour with certain sections of society, there was a decided diminution in their importance. Brāhmaṇism was in the ascendant; but it fundamentally differed from its Vedic counterpart. Some of the Vedic gods disappeared altogether, and those that still retained their existence underwent great transformation in regard to their nature and attributes. Whereas the major Vedic deities like Indra, Varuṇa and Agni were relegated to a much inferior status, Viṣṇu and Rudra-Śiva, who hardly played any significant role in the Vedic pantheon, emerged into pre-eminence and claimed amongst themselves the religious affiliation of the masses. Although the link with the Vedas was not altogether severed and Vedic sacrifices, especially of a politico-religious nature, continued to be celebrated with great zeal, image-worship and similar other observances enjoyed much greater popularity. In the following pages we shall try to scrutinise our evidence with a view to reconstruct a picture of the religious life of the people during our author's period.

A. PANTHEON

I. *Vedic Gods*

INDRA. Indra,[1] variously referred to as Śakra[2],

1. VIII.26; XXXII.6, 18, 24, XLII. 51, 55; XLVII. 78; LII. 43; LVIII.14; LIX.11, 12; LXVIII.29; LXXIX.8; LXXX.7; XCVI.8; XCIX.1.

2. VIII.23, 33; XXXII.6; XXXIII.20; XLII.6, 11, 14, 30, 37, 39, 55; XLIII.25, 26; XLV.73; XLVII.77; LXXXV.1; XCVII.4, 5; XCVIII 1.

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Mahendra,[1] Maghavan[2], Puruhūta[3] and Sahasrākṣa (XLVII. 9) or Sahasra-cakṣuṣ (XLII.58)[4], was the greatest god of the Vedic pantheon and his exploits are celebrated in about 250 hymns of the *Ṛgveda*.[5] In theory his supremacy was retained even after the advent of the *bhakti* cult. Thus he was regarded as the overlord of gods and as such received several secondary epithets such as *surapati* (XXXII.7, 16; LXXXV.75), *sureśa* (XLII.55), *amarapa* (XII.12; XLII.8), *amararāṭ* (XLII.7), *devarāja* (XLII.18), *devarāṭ* (XXXII.27), *vibudhādhipati* (LII.47) and *animiṣa-bhartṛ* (XLII.60). Some of his exploits are also alluded to. The killing of the demons Vṛtra, Bala and Pura is implied by his epithets Vṛtrahan (XLII.55), Balabhid (VIII.23; XLII.67; *YY*, IV.29) and Purandara (XV.14; XLII.24) respectively. The popularity of the belief that by performing one hundred horse-sacrifices one attains to the status of Indra is indicated by his style Śatamanyu (XLII.54).[6] Elsewhere, he is represented as surrounded by gods who had vanquished their foes (XLIII.26). He was believed to cause an earth-quake in the 3rd part of the day (XXXII.7) and a red halo round the moon and sun (XXXIV.2). He is also described as the presiding deity of the eastern quarter (LIII.3; LXXXV.75), the 3rd quinquennial period of the Jovian cycle of 60 years (VIII.23), certain kinds of diamonds (LXXIX.8) and pearls (LXXX.7), the constellation of Jyeṣṭhā (XCVII.5), the 7th lunar day (XCVIII.1), and the *karaṇa* named Vava (XCIX.1). He was regarded as the god of rain[7] and is said to have chopped off the wings of the mountains and made them stationary.[8] We are told that he was consecrated in former times with a ceremonial ablution by numerous gods, goddesses, demi-gods, seers and others (XLVII.55-70).

1. XXXIII.24; XLIII. 14; XLV.80; XLVII. 2; LVII.42.
2. XLII.9; XLVII.70.
3. XLII.56; LIII.3.
4. For an epigraphic allusion to Indra as thousand-eyed Vide *CII*, III, No. 47, l. 1. Also Cf. *Raghuvaṁśa*, III.43.
5. i.e., 1/4th of the *Ṛgveda*. Vide A. A. Macdonell, *Vedic Mythology*, p. 54.
6. Cf. *Raghuvaṁśa*, III.38, 49.
7. XII.12; LXXX.26; LXXXI.6. Cf. *Ṛgveda*, II.12.7, 12.
8. XXXII.3-6. Cf. *Ṛgveda*, II.12.2 where this idea occurs.

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Indra retains his former association with Agni and in their joint capacity they preside over the 10th *yuga* of the 60-year cycle and the constellation of Viśākhā.[1]

The Paurāṇic legends concerning Indra's family appear to have enjoyed considerable popularity. Mention is made of his mother, wife, son (Jayanta) and daughters.[2]

Turning to the other side of the picture, we find that in practice he was surpassed in importance by his quondam juniors, Viṣṇu and Śiva and even by the new personal god Brahmā. Thus it is at Brahmā's instance that he is said to have cut off the wings of the mountains. When overpowered by Asuras in war, he has to beseech Viṣṇu and seek his help in vanquishing them (XLII.2-7). But in spite of the subsidiary position ascribed to him there was no dearth of his devotees (*Purandara-bhakta*, XV.14)[3] It must, however, be noted that while priests qualified to instal the images of various gods are named in the Pratimā-pratiṣṭhāpanādhyāya (Ch. LIX), there is no reference to the consecration of Indra's image. It indicates that Indra was worshipped only as a Lokapāla and that there were no temples dedicated to him.

In a couplet devoted to his iconographic features, we are told that the elephant (mount) of Mahendra is white and four-tusked; (he) holds *vajra* (thunderbolt) in his hand, and a horizontally placed third eye on the forehead is (his) cognizance.[4] The Buddhist god Śakra who corresponds to our Indra and accompanies Buddha in the Gandhāra and Mathurā art cons-

1. Śakrānala (VIII.23), Indrāgnī (VIII.45), Śakrāgnī (XCVII. 4). Cf. "With Agni Indra is more frequently coupled as a dual divinity than with any other god" (Macdonell, *op. cit.*, p. 57)

2. XLII 39-40; XLV.80; LII 43, 54.

3. The existence of Indra cult in the post-Maurya epoch is attested to by a large number of *yūpas* found in U. P., Rajasthan and Central India. Symbols like *Indradhvaja*, *vajra* and *kalpa-vṛkṣa* occur profusely on coins, seals, sealings and sculptures of North India assignable to the period between 200 B.C. and 500 A.D.

4. शुक्लश्चतुर्विषाणो द्विपो महेन्द्रस्य वज्रपाणित्वम् ।
तिर्यग्ललाटसंस्थं तृतीयमपि लोचनं चिह्नम् ॥ LVII. 42.

His elephant is named Airāvata LXXX.20. For an epigraphic allusion to it vide *CII*, III, No. 17, p. 74, l.1. Indra is styled *kuliśa-dhara* and *kuliśa-bhṛt* (XXXII.28 ; *TY*, I.17).

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tantly holds a *vajra*.[1] Particular reference should be made in this connection to a late Gupta grey sandstone relief from Paharpur depicting the two-armed god holding an indistinct object, probably *vajra*, in his right hand; the third eye is placed horizontally on the forehead and his elephant mount is shown standing behind him.[2] (Fig. 1). Rao Bahadur K. N. Dikshit who regarded the third eye 'as a peculiar feature' was evidently unaware of the *Bṛhatsaṁhitā* description noticed here. In a Mathura stone head of the 6th century A.D. the third eye is indicated horizontally The head belonged to an image of Indra, and not to that of Viṣṇu as is hitherto wrongly supposed.

INDRAMAHA. It will not be quite out of place here to give a brief description of a festival in Indra's honour celebrated mainly by kings from very ancient times. It consisted in the raising of and bidding farewell to Indra's flag. The festival began on the 8th of the bright half of Bhādrapada and ended on the 1st of the dark half of the same month.[3] It is mentioned in the *Kaṅśika Sūtra* (140), and *Yājñavalkya-smṛti* (I.14)[4] and briefly described in the *Mahābhārata*[5] and other works.[6] It is called *Śakrotsava* and *Indramaha* in the *Mahābhārata*[7] and *Indradhvaja-sampad* and *maha*[8] in our work which contains by far the most elaborate treatment of this topic in Ch. 42 contents whereof are summarised below.

When unable to defeat the Asuras in war, the gods headed by Indra went on Brahmā's advice to Viṣṇu, who, besought by them, was pleased to give Indra a flag which enabled him to overpower his foes. Indra in his turn gave a bamboo flagstaff to the Cedi king Vasu Uparicara who worshipped it duly and

1. Cf. A. Getty, *The Gods of Northern Buddhism*, p 49, f.

2. K.N. Dikshit, *Excavations at Paharpur*, *MASI*, 55, p. 46, Pl XXVII d.

3. According to the Amānta system. Cf. verse 3 of the Mandassor inscription of the time of Naravarman, dated Mālva 461, which refers to Śakra's festival in the rainy season. See D.C. Sircar, *Select Inscriptions*, 2nd Edition, p. 397.

4. It prescribes a holiday when the flag in Indra's honour is raised and taken down. Vide also *Rāyapaseṇiya sutta*, *Kaṇḍikā* 148; *Ñāyādhammakahā*, I. 25.

5. I.63.1-29. Cr. edition (BORI), I.LVII.1-29.

6. *Kṛtya-ratnākara*, *Saṁskāra-candrikā*. Cf. *HDS*, II, pp. 398, 825.

7. I.63. 26-7, 29.

8. Ch. XLII is entitled *Indra-dhvaja-sampad*; it is called *maha* in XLII.9.

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thus started the festival.[1] The first act in this connection was procuring suitable timber. For this purpose a carpenter accompanied by an astrologer went to the forest at an auspicious time. The timber of *arjuna*, *ajakarṇa*, *priyaka*, *dhava* and *udumbara* is said to be the best.[2] According to a couplet from Garga cited by Utpala this selection was to be done on the first day of Bhādrapada.[3] After the selection was over, a Brāhmaṇa went to the forest in night and made offerings (*bali*) to the spirits (*bhūtas*) haunting the tree in question;[4] it wasc ut down the next morning;[5] the tree-trunk was to be chopped off at the top to the extent of 4 *aṅgulas* and 8 *aṅgulas* at the bottom, put into water, taken out, covered with new cloths and decked with garlands, perfumes and incense; and then on the 8th of the bright half of Bhādrapada brought by cart or men to the town adorned with attractive banners, arched gates, garlands, clean thorough-fares, well-attired courtesans and beautifully decorated shops, resounding with *puṇyāha*[6] and the chanting of Vedic

1. The *Mahābhārata* does not bring in Brahmā and Viṣṇu and simply states that the festival was started by Vasu who obtained the staff from Indra and planted it in the ground at the end of the year and raised it on the other day. As suggested by Kane (*HDS*, II, p. 826), the raising of the bamboo staff on the 1st day of Caitra every year in Deccan and other places may be its reminiscent.

2. XLII.15. Forbidden for this purpose were the trees growing in parks, near a temple, on a cremation ground or an ant-hill, by the road-side; *caitya-vṛkṣas*; those that are extremely bent, withered at the top, thorny and entwined by creepers and parasitical plants; those that contain birds' nests or holes, are damaged by wind or fire, and bear feminine names (XLII.13-4).

3. प्रोष्ठपादे प्रतिपदि ध्वजार्थं पूर्वतो वनम् ।
गत्वा वृक्षं परीक्षेत वयःसारगुणान्वितम् ॥

4. XLII.16-18. Verses 17-8 asking the spirits to leave the tree in question are said to be a *mantra*.

5. The carpenter while felling the tree faced north or east. The creaking sound of the axe was considered inauspicious, while soft and deep one auspicious. A tree falling unbroken and without being bent and entwined with another tree was supposed to bestow victory on the king; one falling under contrary circumstances was to be rejected (XLII.19-20).

6. It was originally a very simple ceremony; the performer of a religious rite honoured the assembled Brāhmaṇas and requested them with folded hands 'may you declare the day to be auspicious for such and such a ceremony which I.....am about to perform' and then the Brāhmaṇas responded by saying 'Om, may it be auspicious'. Vide *HDS*, II, pp. 216-7, fn. 503.

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mantras, and with cross-roads crowded by acrobats, dancers and songsters and to the accompaniment of the sounds of conches and other musical instruments. It was again chiselled and ceremoniously fixed into a pedestal (*yantra*); the king ordered a vigil on the 11th night of the bright half of Bhādrapada; the priest offered a sacrifice and the astrologer interpreted omens.[1] Next Brāhmaṇas were fed and the staff raised on the 12th day, whether the moon be in the constellation of Śravaṇa or not[2]; near it were to be placed five or seven smaller staffs called *Śakra-kumārīs*; of these, those named Nandā and Upanandā respectively were to be 1/4th and a half less in height than the main staff; Jayā and Vijayā taller than Nandā and Upanandā respectively by a 16th and the two Vasundharās taller than Jayā and Vijayā respectively by a 16th; the 7th named Śakra-janitrī was to be taller than the second Vasundharā by an eighth and placed in the centre.[3] In order to

1. XLII.29-30.

2. XLII.38. Cf. Garga as cited by Utpala. According to Garga quoted by Aparārka on *Yājñavalkya*, I.147, the banner was to be raised on the 12th of the bright half of Bhādrapada when the moon is in conjunction with Uttarāṣāḍhā, Śravaṇa or Dhaniṣṭhā. According to the *Kāuśika Sūtra*, the festival began on the 8th of the bright half of Bhādrapada or Āśvina and the flag raised on the 12th of the same month.

3. शक्रकुमार्यः कार्याः प्राह मनुः सप्त पञ्च वा तज्ज्ञैः ।
नन्दोपनन्दसंज्ञे पादोनार्द्धध्वजोच्छ्रायात् ॥
षोडशभागाभ्यधिके जयविजये द्वे वसुन्धरे चान्ये ।
अधिका शक्रजनित्री मध्येऽष्टांशेन चैतासाम् ॥
XLII. 39-40.

Cf. Garga cited on the above—
दृढकाष्ठकृताः पञ्च सप्त वा लक्षणान्विताः ।
इन्द्रध्वजस्य शोभार्थं कुमारीः कारयेद् द्विजः ॥

Varāhamihira does not give the measures of the flag. Garga gives the following measurements :—

तथा च गर्गः,
अष्टाविंशत्करा यष्टिरष्टहस्ता ततोऽपरा ।
विष्कम्भश्चाङ्गुलैस्तस्याः षड्भिर्द्विगुणितैः स्मृतः ॥
समग्रमनुलोमं वा तक्षं प्राक् शिखयान्वितम् ।
कुर्यादिन्द्रध्वजं शुभ्रं सारदारुमयं शुभम् ॥

Śakra-kumārīs were to be made of strong and unbroken wood (XLII. 58).

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keep the principal staff erect it was fastened with eight strong ropes in eight directions tied to the wooden pegs (*mātṛkās*) fixed in the ground on both sides of the staff; it was also adorned at the bottom with an arch which was fastened with tight nails (*argala*).[1] Then on the full moon day of the same month the king fasting and reciting certain *mantras* decked it with thirteen ornaments said to have been given to it in former times by various gods, the first being 1/3rd of the flag in circumference and each of the succeeding ones being smaller than the preceding one by an eighth,[2] and with an umbrella, banners, mirrors, garlands of fruits[3], crescent-shaped ornaments, multi-coloured garlands, bananas, sugar-cane pieces, toys shaped like the *vyālasiṁha*, windows (*gavākṣa*) and the Lokapāla images placed in their respective quarters. Thus decorated, the flag was again erected amidst the unceasing sounds of benedictory words, invocations and the chanting of Vedic hymns by Brāhmaṇas; and in the presence of the people bowing their heads in homage and invoking it with fruits, curds, clarified butter, fried rice, honey and flowers the staff was raised in such a manner as to point to the enemy's town with its top, for it was believed to spell enemy's ruin. Great care was taken in raising it and *śāntis* observed to mitigate procedural mistakes.

1. अच्छिन्नरज्जुं दृढकाष्ठमातृकं सुश्लिष्टयन्त्रार्गलपादतोरणम् ।
उत्थापयेल्लक्ष्म सहस्रचक्षुषः सारद्रुमाभग्नकुमारिकान्वितम् ॥
XLII.58.

Cf. Utpala— तथा अच्छिन्नरज्जुम् इन्द्रध्वजबन्धनार्थमष्टासु दिक्षु अष्टौ रज्जवः कार्याः; तथा च गर्गः; यथादिशं च रज्ज्वष्टौ मौञ्जीस्रग्दामसंहिताः । निग्रहार्थं ध्वजे कार्या निबद्धाश्चेन्द्रमण्डले ॥ इन्द्रध्वजनिष्पीडनार्थं पार्श्वद्वये मातृकाद्वितयं कार्यम् । अयमर्थः । पादमूलध्वजस्य तोरणं कार्यं तत्र या मातृका पार्श्वस्थितानि निरन्तराणि काष्ठानि तासां मातृकाणां तिर्यक्कृत्वा यानि काष्ठानि निक्षिप्यन्ते तान्यर्गलाग्रहणेनोच्यन्ते ।

2. XLII.41-56. Verse 7 names groups of small tinkling bells, garlands, umbrella, bells and *piṭakas* as ornaments of the staff—
स किंकणीजालपरिष्कृतेन स्रक्कुलत्रघण्टापिटकान्वितेन ।
Many illustrations of banner and umbrella being shown on one and the same staff are found in Ajanta frescoes (*NPP*, LVIII, p. 243). Varāhamihira seems to use the word *piṭaka* in the sense of ornaments. It is evident from the fact that he calls the thirteen ornaments both as *piṭaka* and *bhūṣaṇa*. Cf. verses 41, 50.

3. Utpala (on verse 57) takes *phala* to mean a plough (*lāṅgala*). It is difficult to understand how a plough could be used in adorning the staff.

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It was worshipped and erected in this manner for four days and was taken down on the fifth day.[1]

VARUṆA. In the *Ṛgveda* Varuṇa along with Indra was the greatest of gods and was regarded as the upholder of physical and moral order and as regulator of waters. But as early as the time of the *Atharvaveda* he was divested of his greatness, except as controller of waters.[2] In the later Hindu pantheon, he sank to the position of an Indian Neptune. Varāhamihira represents him as the presiding deity of an earthquake in the fourth part of the day, slightly white halo round the sun or the moon, an eclipse, certain kinds of diamonds and pearls and the constellation of Śatabhiṣaj.[3] Twenty-two comets called Kaṅka are said to be his sons (XI.26) and so is the sage Agastya (XII.13). But he was best known as the guardian deity of the western quarter[4] and as the lord of waters. The latter attri-

1. In conclusion mention may be made of the omens inferred at various stages of the festival. The performance, according to rules, of Indramaha was supposed to bestow prosperity and victory on the king and happiness, freedom from fear and disease and a good supply of food on the subjects and to give indications of good or bad happenings in future (vv. 9-10, 68). The breaking of the spoke, wheel, rim and axle-pins of the cart at the time of carrying the tree-trunk to the town was taken to augur destruction of army, wealth and the carpenter (v.22). The banners of white, yellow, variegated and red colours (hung for adornment) indicated victory, outbreak of disease, victory and war respectively. Similarly, elephants and other animals felling the trunk and the boys clapping their hands or animals fighting with one another foretold impending fear and war respectively (vv. 27-8). Carnivorous birds, owl, pigeon, crow and *kaṅka* sitting on the staff were believed to indicate great danger to the king; *cāṣa*, to the crown-prince; a hawk, destruction of king's eye; the breaking or falling of umbrella, king's death; bees clinging to the staff, feat from thieves; a meteor falling on it, the death of *purohita*; a lightning, queen's death; a banner falling, as above; the fall of an ornament, drought; the staff breaking in the middle, top and the bottom, death of the minister, king and the townsfolk; the staff being covered with smoke or dark, outbreak of fire or mental aberrations; snake-figures breaking or falling, death to ministers; ill-portents in the north, east, south and west, death to Brāhmaṇas etc.; the breaking of *Śakra-kumārīs*, death to harlots; the ropes giving way, trouble to children; if the prop near the *toraṇa* (*māṭṛkā*) breaks, trouble to queen-mother; the good or bad acts of bards and boys were believed to have corresponding effects (vv. 62-6). The omens derived from fire will be noticed subsequently.

2. Macdonell, *op. cit.*, pp. 22, 25-6.

3. XXXII.7, 20; XXXIV.2; V.19, 22; LXXIX.9; LXXX.7; XCVII.5.

4. LIII.3; LXXXV.75. Cf. Junagadh stone inscr. of Skandagupta (*CII*, III, p. 89, l.9)—*Niyujya devā Varuṇaṁ pratīcyāṁ svasthā yathā n-onmanaso babhūvuḥ.*

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bute gave him such epithets as *ambupati* and *jeleśvara*.[1] It was again in this capacity that he received worship to ward off the evil outcomes of a portent relating to water, and *bali* was offered to him at the commencement of digging a well.[2]

Varuṇa, says our author, rides a swan and holds a noose (*haṁs-ārūḍhaś=ca pāśa-bhṛd=Varuṇaḥ*[3], LVII.57). In sculpture, however, he is depicted standing on a crocodile, not on a swan. Reference may be made to a side-piece from the Rajarani temple at Bhuvaneshwar depicting the two-armed god standing and holding a looped noose by its end in the right hand, the left one being in the *varada-mudrā*[4]. Figure 39 from a basement wall of the temple at Paharpur depicts a two-armed deity standing in the *samapada* attitude, holding in his hands the ends of a *pāśa* which passes round his head, and accompanied by a male and a female attendant. The late Rao Bahadur K. N. Dikshit identified him with Yama[5]; but while the absence of a *daṇḍa*, which is Yama's characteristic weapon, goes against this identification, the presence of *pāśa*, which is invariably associated in iconographic texts with Varuṇa, tends to suggest his identification with the latter (Fig. 2).

PRAJĀPATI-BRAHMĀ. Already in the 10th *maṇḍala* of the *Ṛgveda*, Prajāpati is celebrated as the creator of the heaven and earth, waters and all life and as the one lord of all that exists. In the later Saṁhitās and the Brāhmaṇas he is recognised as the supreme god who created gods as well as demons.[6] But as early as the time of the *Āśvalāyana Gṛhya Sūtra* (III.4) we find him identified with the personal god Brahmā, the first member of the well-known Hindu trinity of gods (*trimūrti*). Varāhamihira employs these two names as synonymous.[7] He was

1. LII.44; *YY*, VI.12. Also cf. XXXIV.2.
2. XLV.50; LIII.124.
3. Cf. *YY*, VI.12 where *gadā* is mentioned as another attribute of Varuṇa—*Jal-eśvaraṁ pāś-ānvitaṁ saha gadayā ca pūjitam.*
4. J. N. Banerjea, *DHI*, p. 527, Pl. XLVI, Fig. 1.
5. K. N. Dikshit, *Excavations at Paharpur, MASI*, 55, p. 50, Pl. XXXII (a).
6. Macdonell, *op. cit.*, pp. 118-9.
7. Prajāpati VIII.24, 29; XI.25; XLVII.68. Brahmā I.5, 6; II.12; V.19, 20; XI.25; XXVI.5; XXXIII.22; XLV.10. XLVII.55; LXXIII.20.

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regarded as self-born, creator of the universe, first among the sages and as the grand-father of the mankind and as such is called Svayambhū[1], Dhātṛ and Viśva-kṛt,[2] Prathama-muni[3] and Pitāmaha.[4]

He is represented as causing a green halo round the sun or the moon and as presiding over an eclipse, the fourth year of the quinquennial *yuga*, the 5th year of the 1st *yuga*, the asterism Rohiṇī, the first lunar day of a fortnight (*pratipad*), and the *karaṇa* called Vālava.[5] The comets named Brahmadaṇḍa, Gaṇaka and Caturaśra are said to be his sons (XI.15, 25). Curiously enough the weighing balance is called his daughter (XXVI.5).

He was considered to be the first exponent of every science, astrology being no exception. Our author claims to have consulted his work on this subject (I.2-5).

He is represented as the chief of gods and Indra is made to obey him (XXXII.3-6)[6]; he is always solicitous of the welfare of gods; he is said to have taught *Puṣya-śānti* to Bṛhaspati for the sake of Indra (XLVII.2). The heavenly abode of Brahmā (*Dhātṛbhavana* LXXIII. 18, 19; *Brahma-loka* II.12), which was the goal of the spiritual aspirations of the god-fearing people, is said to be inhabited, among others, by gods, sages, Sidhhas, bards and manes (LXXIII.19).

The Paurāṇic legend that as a result of a boon granted by Brahmā, Rāhu appropriates a share of sacrifices and gifts offered at the time of an eclipse is referred to (V.2, 14).

Brahmā seems to have enjoyed considerable importance and we have a reference to temples dedicated to him (*Brahmāyatana*, XXXIII.22). In later Hindu pantheon Brahmā was the most prominent representative of Vedicism which had lost much of its importance. This is confirmed by the fact that his images could be consecrated only by Brāhmāṇas learned in the Vedas (LIX.19 and comm.).

Varāhamihira seems to be conscious of the concept of the

1. XLVII.2.
2. LXXIII.18, 19; I.6.
3. I.2.
4. I.4; XXXII.3, 5; XXXIV.2; LXXXVII.40.
5. XXXIV.2; V.19, 20; VIII.24; VIII.29; XCVII.4; XCVIII.1; XCIX.1.
6. Cf. LXXXVII.40 where gods are referred to as *Pitāmahādi*.

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triumvirate of gods as is evident from the mention of Brahmā, Viṣṇu and Rudra (Śiva) in their fixed order (XLVII.55). Although regarded as the first constituent of the triad, he was surpassed in importance by Viṣṇu and Śiva.[1] He was now conceived as born from the mundane egg floating on cosmic waters (I.6) or from the lotus springing from Viṣṇu's navel in consequence of which he came to be called Kamalaja[2], Kamalayoni[3], Padmodbhava and Paṅkaja-prabhava.[4] Many are the images illustrating this myth.[5] When gods are unable to meet their foes in battle, Brahmā is not in a position to come to their rescue and advises them to seek Viṣṇu's help.[6] Moreover, only half a verse is allotted to the description of Brahmā's iconographic features, while even minor deities like Baladeva claim much more space.

We get very few details about his iconography: Brahmā has a water-vessel in his hand, is four-faced and seated on a lotus-seat (*Brahmā kamaṇḍalu-karaś=caturmukhaḥ paṅkaj-āsanasthaś=ca*, LVII. 41).[7] Curiously enough, no information is given about the number of his hands, the other objects held, his mount and consort. Two two-armed Kuṣāṇa stone figures from Mathura are worthy of special note for a unique arrangement of his heads: the difficulty of depicting the fourth head is overcome by placing three of them in one row, the fourth one being superimposed over the central head. In one of these images he holds a nectar vase (*amṛtaghaṭa*) in his left hand.[8] A *caitya*-window at the Śiva temple at Bhumara contains a four-headed and four-armed figure of Brahmā seated

1. It was customary with the devotees of Viṣṇu and Śiva to represent Brahmā as subordinate to their respective deity. Cf. *CII*, III, No. 35, lines 1-2 where Svayambhū is said to be obedient to Śiva's commands.

2. XCVII.4; XCVIII.1; XCIX.1.

3. V.2.

4. *TY*. I.2; III.2.

5. E. g. M. S. Vats, *The Gupta Temple at Deogadh*, *MASI*, No. 70, Pl. X (b).

6. See *supra*, p. 119.

7. Kāśyapa (as cited by Utpala on p. 785) describes him as four-faced, having a staff, skin of a black antelope and a water-vessel:— ब्रह्मा चतुर्मुखो दण्डी कृष्णाजिनकमण्डली. It seems to stress his *brahmacārin* aspect wherein he wears the hide of a black antelope and carries a staff and a *Kamaṇḍalu* in his hands.

8. Mathura Museum Nos. 382, 2134.

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on a lotus-seat; two of his four hands are broken, the remaining right and left ones holding a lotus with stalk and a staff respectively.[1] A stone relief from Aihole illustrates a beautiful three-faced (it being impossible to show the fourth back head in rellef sculptures) and four-armed figure of Brahmā seated on lotus-petals; three of his hands carry a rosary, a noose, and a *kamaṇḍalu*, the left natural hand being shown in *varada-mudrā*.[2]

VIṢṆU. Viṣṇu was a solar deity in the Ṛgvedic pantheon and occupied quite an insignificant position in the hierarchy of gods. But with the advent of the *bhakti* cult Viṣṇu lost his solar character and reappeared as one of the most important cult gods with an added splendour and vigour. Varāhamihira gives various names by which Viṣṇu[3] was known in his time, viz., Nārāyaṇa[4], Hari,[5] Keśava,[6] Mādhava, Madhusūdana, Govinda, Śrīdhara, Hṛṣīkeśa, Dāmodara (CIV.14-5), Vāsudeva (LXVIII. 32) and Kṛṣṇa (LVII.37). He is called *Bhagavat*[7] which name is also implied in the word *Bhāgavata* standing for the devotees of Viṣṇu. He is described as incomprehensible (*acintya*), peerless (*asama*), impartial (*sama*), unknowable to all beings (*sarvadehināṁ sūkṣmam*), the Supreme Soul (*paramātman*) without beginning (*anādi*), without end (*avijñātaparyantam*), all-pervasive (Viṣṇu) and the God (*deva*, XLII.4-5). The undisputed supremacy enjoyed by Viṣṇu over all other gods with the sole exception of Śiva and Sūrya is apparent from the story of the gods overpowered by demons in war seeking his protection. The fact that while giving iconographic features of various gods Varāhamihira accords first place to Viṣṇu also points to the same conclusion. He, under various

1. *MASI*, No. 16, p. 12, pl. XII(b).

2. T. A. G. Rao, *Elements of Hindu Iconography*, Vol. II, Pt. II, Pl. CXLVI. For another Brahmā figure hailing from the same place vide *ibid*, Pl. CXLIV; G. H. Khare, *Mūrti-vijñāna* (Marāthī), pp. 7-8, Pl. I.

3. VIII.23, 26; XLII.4, 6, 30, 54; XLIII.6; XLV.11; XLVII.26, 55; LVII.31, 35; LIX.19; LXXIX.8; LXXX.7; CIV.6,14.

4. VIII.21; XLII.5; XLVII.77; CIV.14.

5. XXIV.18; XCVII.5; XCVIII.1; *TT*, I.2.

6. XLII.2; CIV. 8,14.

7. XLII.2. Fleet (*CII*, III, p. 28, fn. 5) has rightly observed that the title *Bhagavat* seems to belong most particularly to Viṣṇu, and to denote him wherever there is nothing in the context to give any other application.

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names, was believed to preside over the first *yuga* of the sixty-year cycle (VIII.21, 23, 26), diamonds of any shape (LXXIX. 8), pearls resembling a lin flower in colour (LXXX.7), the constellation of Śravaṇa (XCVII.5), the 3rd lunar day (XCVIII.1), all the twelve months of the year beginning with Mṛgaśīrṣa (CIV.14-5) and Mercury (*BJ*, II.5).

Some of the Paurāṇic legends relating to Viṣṇu are also noticed. Thus he is represented as having his abode in the milk-ocean (*kṣīroda*), as the consort of the goddess Śrī (*Śrīpati*, XLII.2-4) and as wearing yellow garments (XXIV.18). The myth regarding the lotus issuing from his navel giving birth to Brahmā is alluded to in names like Kamalanābha (XLIII.1), Abjanābha (LXVII.94), Padmanābha (CIV.15) and Padmadhana (*TY*, I.2) and that of his killing the demon Madhu in Madhusūdana (CIV.14). The Popular belief of Viṣṇu's slumber during the four months of the rainy season and his waking up in autumn is also recorded (XLIII.1).[1]

Viṣṇuism was and is still indeed one of the two most prominent Brāhmaṇical sects which share between themselves the affiliation of larger strata of society. The commingling of the cults centring round the Vedic god Viṣṇu, the cosmic god Nārāyaṇa and the historic god Vāsudeva-Kṛṣṇa which culminated in sectarian Vaiṣṇavism was a *fait accompli* long prior to Varāhamihira.[2] It is amply evident from our work wherein the names Viṣṇu, Nārāyaṇa and Kṛṣṇa are employed to denote the same god : The account of the propitiation of Viṣṇu by gods is immediately followed by the statement that Nārāyaṇa gave them a banner leading to victory over demons (XLII.3-5). After describing the iconographic features of Viṣṇu and Baladeva, Varāhamihira states that the goddess Ekānaṁśā should be placed between Baladeva and Kṛṣṇa (LVII.31-9). In these instances, Viṣṇu, Nārāyaṇa and Kṛṣṇa evidently stand for one and the same god. Although the intrusion of the cowherd element is indicated by such names as Govinda aud Dāmodara[3],

1. Cf. *nidrā-vyavāya-samaye Madhusūdanasya*, Gangdhar stone inscr. of Viśvavarman of A.D. 424-5 (*CII*, III, No. 17, l. 21, p. 75).

2. Cf. R. G. Bhandarkar, *Vaiṣṇavism, Śaivism and Minor Religious Sects* (*Collected Works of Sir R. G. Bhandarkar*, Vol. IV), pp. 42 ff; *The Age of Imperial Unity*, pp. 435 ff.

3. Cf. *Meghadūta* I. 15 which describes Viṣṇu as clad in cowherds' dress (*gopaveṣa*).

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there is no reference to Kṛṣṇa's amorous dalliances with cowherdesses.

Varāhamihira refers to the followers of Viṣṇu cult as *Vaiṣṇava*[1] and *Bhāgavata*.[2] Utpala explains *Bhāgavata* as *Bhagavad-bhakta* or *Vaiṣṇava* and *Vaiṣṇava* as *Viṣṇu-bhakta*.[3] These technical sectarian titles were very popular among the votaries of Viṣṇu as is evident from their use in a large number of Gupta epigraphic records and coin-legends. Thus, the Gupta emperors Candragupta II[4], Kumāragupta[5] and Skandagupta[6] style themselves as *Parama-Bhāgavata*, i.e., the most devout worshipper of the Divine one (Viṣṇu). Many other rulers and ordinary individuals are also styled as *Parama-Bhāgavata*[7], *Bhāgavata*,[8] *Atyanta-Bhagavad-bhakta*[9] and *Parama-Vaiṣṇava*[10]. There can be no doubt that the great popularity enjoyed by Viṣṇuism must have been at least partly due to its adoption and patronage by many powerful ruling families.

It has been pointed out by Dr. P. C. Bagchi that whatever connection Bhāgavatism might have had with the Pañcarātra in the beginning, in the Gupta period they became completely different from each other. The *caturvyūha* doctrine which

1. LXXXV.33; *BY*, XXIII.29.

2. XV.20; LIX.19; LXXXVI.25 Cf LXVIII.32 which mentions devotees of Vāsudeva.

3. XV.20; LXXXVI.25; LXXXV.33.

4. *CII*, III, No. 4, l.11; No. 7, l.1; No. 12, l.20; No. 13, l.5; *CII*, V, No. 2, p. 7, l.6; No. 8, p. 36, l. 6; A. S. Altekar, *Coinage of the Gupta Empire*, pp. 123, 137, 141, 153.

5. *CII*, III, No. 8, l.1; p. 41, l.1; No. 10, l.5; No. 12, l. 22; No. 13, ll.5-6. Altekar, *Op. cit.*, pp. 218, 222, 224, 226, 229, etc.

6. *CII*, III, No. 12, l.24. Altekar, *Op. cit.*, pp. 251 ff.

7. *CII*, III, No. 25, l.10; No. 38, l.8; No. 40, l.3; No. 41, l.3; No. 46, l.2. The Traikūṭakas describe themselves as *Bhagavat-pāda-karmakara*, vide *CII*, IV, No. 8, ll. 1-2; No. 9, l.1.

8. *Ibid.*, Vol. III. No. 27, l.7.

9. *Ibid.*, No. 36, l.4; No. 19, l.6; V.V. Mirashi, *CII, V*, No. 2, l. 8.

10. *CII*, III, No. 81, l.18. *BMC, AWK*, etc. pp. 198f.; *CII*, IV, pp. cxlvii, clxxx.

Although the style *Parama-Bhāgavata* is not applied to Samudragupta in any genuine record (he is styled *Parama-Bhāgavata* in the Gaya CP. of A.D. 328-9, *CII*, III, No. 60, p. 236, l.6, but it is regarded as spurious), his adoption of Garuḍa, the vehicle of Viṣṇu, as his royal emblem and the representation of *garuḍadhvaja* on his coins amply attest to his Viṣṇuite leanings.

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formed one of the central tenets of the Pāñcarātra, it is pointed out, is totally absent from Bhāgavatism which lays stress on the theory of *avatāravāda*.[1] It must be mentioned in this connection that Varāhamihira refers to at least three of the four *vyūhas*, viz., Viṣṇu (Vāsudeva-Kṛṣṇa), Baladeva (Saṅkarṣaṇa) and Pradyumna, and gives rules for making their images. The *Amarakoṣa* (I.1.20, 23-4, 25, 27) refers to all the four *vyūhas* including Aniruddha whose name is omitted by Varāhamihira. The joint worship of Kṛṣṇa, Baladeva and Ekānaṁśā is regarded by some as a modified form of *vyūhavāda*.[2] Also it seems that the *vyūhavādins* could not escape from the influence of *avatāravāda*. Moreover, if we are to rely on Utpala, we cannot but be led to the conclusion that Vaiṣṇavas of all denominations worshipped Viṣṇu in the Pāñcarātra mode. While dealing with the ceremony of the *Rūpasattra*, Varāhamihira states that one should worship Keśava according to the prescribed mdoe (*Keśava-pūjanaṁ sva-vidhinā*, CIV.8) which Utpala explains as the Pāñcarātra or Vedic manner (*svavidhinā ātmīya-vidhānena..... ...Vaiṣṇavyena Pāñcarātra-vihitena pūjākrameṇa Vaidikena vā*).[3]

We learn from the Mṭora stone slab inscr. of the first century A.D. that the five Vṛṣṇi heroes, viz. Saṅkarṣaṇa, Vāsudeva, Pradyumna, Śāmba and Aniruddha, were apotheosised and worshipped in the Mathura region in the early centuries of the Christian era.[4] Although their cult, with the only exception of that of Vāsudeva,steadily declined, its continuation to some extent down to the Gupta age may be inferred from Varāhamihira's mention of the first four (LVII.31-40).

An important feature of Bhāgavatism during our period was the worship of Viṣṇu's *avatāras* or incarnatory forms. The lists of incarnations in the Purāṇas, the *Mahābhārata* and the Pāñcarātra-Saṁhitās diverge widely from one another regarding their number and names.[5] Our author mentions the following

1. R. C. Majumdar (ed.), *History of Bengal*, I, p. 402 f.
2. *Classical Age*, pp. 418-9.
3. Cf. Utpala on LIX.19—*Pāncarātra-vidhinā Viṣṇoḥ*,
4. *ASI, AR*, 1911-12, Pt. II, p. 127; R. P. Chanda, *Archaeology and Vaiṣṇava Tradition*, *MASI*, No. 5, pp 166-67; *EI*, XXIV, p. 194. The inscription was correctly interpreted by J. N. Banerjea, vide *JISOA*, X, pp. 65-68; *PIHC*, 7th Session, p. 82.
5. R. G. Bhandarkar, *Vaiṣṇavism, Śaivism*, etc., pp. 58-60; *Classical Age*, pp. 415-6.

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incarnations : Varāha (XLII.54), Vāsudeva-Kṛṣṇa (LVII. 37; LXVIII.32), Vāmana-Trivikrama (CIV.14) and Rāma, the son of Daśaratha (LVII.30). It must, however, be remembered that Varāhamihira nowhere describes them as *avatāras*. The Vāmana *avatāra* is already anticipated in the three strides of Viṣṇu so vividly described in the *Ṛgveda* (I.155.5 etc.) and in the story of Viṣṇu the Dwarf growing so large as to encompass the whole earth and thereby securing it for the gods as narrated in the *Śatapatha-brāhmaṇa* (I.2.5). Its popularity during the Gupta period is evidenced by the Junagadh rock inscr. of Skandagupta which refers to the story that Viṣṇu seized the goddess of fortune from Bali for the sake of Indra.[1] This story is also implied in Viṣṇu's appellations *Indrānuja* (Indra's younger brother) and *Upendra* found in Skandagupta's Bihar stone inscr. and Śīlāditya VII's Alina copper-plate inscr.[2] respectively. The popularity of the Kṛṣṇa incarnation is proved by Kālidāsa's reference to Viṣṇu attired as a cowherd (*Barheṇ-eva sphurita-rucinā gopa-veṣasya Viṣṇoḥ, Meghadūta*, Pūrvamegha, verse 15), by Viṣṇu's association with Jāmbavatī, traditionally a wife of Kṛṣṇa, in the Tusham rock inscr. (*Jāmbavatī-vadan-āravind-orjjit-ālinā dānav-āṅganā-mukh-āmbhoja-lakṣmī-tuṣāreṇa Viṣṇunā*),[3] and by the description of Lakṣmī as Vāsudeva's consort in the Sarnath stone inscr. of Prakaṭāditya.[4] Sir R. G. Bhandarkar and Dr. H. C. Raychaudhuri held that though Rāma, son of Daśaratha, was regarded as an *avatāra*, "there was no cult in his honour." The former went so far as to suggest that the cult of Rāma must have come into existence in about the eleventh century A.D.[5] This opinion needs substantial modification in view of the facts stated below. The Vākāṭaka queen Prabhāvatīguptā, who styles herself as *atyanta-bhagavad-bhaktā*, was a votary of *Bhagavat* Rāmagirisvāmin (probably an allusion to a Rāma temple at Rāmagiri, modern Ramtek, near Nagpur); Kalidāsa describes Viṣṇu's descent as Rāma for killing Rāvaṇa (*Raghuvaṁśa*, Canto X) and refers to Rāmagiri as marked by the foot-prints of Rāma

1. *CII*, III, No. 14, p. 56, stanza 1, fn. 1.
2. *CII*, III, No. 14, p. 49, l.1; No. 39, l.14, p. 174.
3. *Ibid*, No. 67, p. 270, l.1.
4. *Ibid*, No. 79 p. 285 l.4.
5. *Vaiṣṇavism Śaivism* etc. p. 65 f.; H. C. Raychaudhuri, *Materials for the Study of the Early History of the Vaiṣṇava Sect*, p. 174.

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(*Vandyaih puṁsāṁ Raghupati-padair=aṅkitaṁ mekhalāsu. Megha-dūta*, Pūrva, 2); Varāhamihira states that the image of Rāma, son of Daśaratha, should be 120 *aṅgulas* high (LVII. 30); some interesting stone slabs of the Gupta period depicting the story of Rāma have been recently discovered at Nachna in the Panna District of Madhya Pradesh; the scenes from the *Rāmayaṇa* are also to be found in the reliefs of the Daśāvatāra temple at Deogadh.[1] It may be casually noticed that Varāhamihira uses the word *Rāma* in the sense of 'three' (VIII.20), indicating his awareness of the three Rāmas, Paraśurāma, Dāśarathi Rāma and Balarāma. But we are not told that they were regarded as *avatāras*. By far the most popular incarnation was Varāha (Boar). It is anticipated in the *Śatapatha-brāhmaṇa* (14.1.2) which states how Prajāpati in the form of a boar raised the earth from the bottom of the ocean. The *Taittirīya-āraṇyaka* represents the earth as having been raised from the waters by a hundred-armed black boar. In order to obtain the concept of the incarnation in question, we have only to transfer this function from Prajāpati to Viṣṇu.[2] The popularity of this incarnation during the period under review is countenanced by references to Varāha's exploits in inscriptions[3] and literature[4] and by some beautiful and vigorous Varāha images found in different parts of the country.[5]

Describing Viṣṇu's iconography, Varāhamihira states[6]

1. *MASI*, No. 70, Pls. XV-XVII.
2. Macdonell, *Vedic Mythology*, p. 41.
3. जयति धरण्युद्धरणे धनघोणाघातघूर्णितमहीद्ध्रः ।
देवो वराहमूर्तिस्त्रैलोक्यमहागृहस्तम्भः ॥
Eran stone inscr. of Toramāṇa, *CII*, III, No. 36, l.1. Also Cf. *IHQ*, XXI, p. 56 f.;
4. Cf. *Raghuvaṁśa*, VII.56.
5. E.g., the famous Varāha panel at Udayagiri and two beautiful Varāha statues, one in human and the other in animal form, recently found at Eran. Personal names beginning with the word *varāha* also indicate the popularity of the Varāha cult. cf. Bhandarkar's List, Nos. 9, 13, 67, 1195, 1196, 1329, 1712.
6. कार्योष्टभुजो भगवांश्चतुर्भुजो द्विभुज एव वा विष्णुः ।
श्रीवत्साङ्कितवक्षाः कौस्तुभमणिभूषितोरस्कः ॥
अतसीकुसुमश्यामः पीताम्बरनिवसनः प्रसन्नमुखः ।
कुण्डलकिरीटधारी पीनगलोरःस्थलांसभुजः ॥
खड्गगदाशरपाणिर्दक्षिणतः शान्तिदश्चतुर्थकरः ।
वामकरेषु च कार्मुकखेटकचक्राणि शङ्खश्च ॥

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that his breast should be marked with the sign *Śrīvatsa* and adorned with the *Kaustubha* gem;[1] he should be yellowish green in complexion like a lin flower and clad in yellow garments, his face being placid; he wears *kuṇḍalas* and a *kirīṭa*, his neck, breast, shoulders and arms being full and fleshy; the worshipful god Viṣṇu may be represented eight-, four-, or two-armed. In the case of an eight-armed image, three of his right hands hold a sword, a mace and an arrow, the fourth being in the *śāntida* pose;[2] the hands on the left should carry a bow, shield (*kheṭaka*), discus and conch.[3] If he is intended to be four-armed, his right hands show a mace and *śāntida-mudrā*, while the left ones carry a conch and a discus. Of the two-armed image, the right hand should be shown in *śāntida-mudrā*, the left one holding a conch-shell. Two eight-armed images of Viṣṇu

अथ च चतुर्भुजमिच्छति शान्तिद एको गदाधरश्चान्यः ।
दक्षिणपार्श्वे त्वेवं वामे शङ्खश्च चक्रं च ॥
द्विभुजस्य तु शान्तिकरो दक्षिणहस्तोपरश्च शङ्खधरः ।
एवं विष्णोः प्रतिमा कर्तव्या भूतिमिच्छद्भिः ॥ LVII.31-5.

1. Cf. श्रीवत्साङ्कं कौस्तुभमणिकिरणोद्भासितोरस्कम् ॥ XLII.3.

For an epigraphic allusion to *kaustubha* gem vide *CII*, III, No. 18, p. 83, l.22.

2. Utpala explains it as 'the hand facing the visitor (turned to the front) with fingers raised upwards : *Draṣṭur=abhimukha ūrdhv-āṅguliḥ śāntidaḥ karaḥ*. It is apparently the same as the *abhaya-mudrā* with which the students of Buddhist art are well acquainted.

3. Some of the weapons held are referred to in inscriptions. *Nandaka* is the name of Viṣṇu's sword. Cf. Aphsad inscr. of Ādityasena, *CII*, III, No. 42, p. 203, ll.13-4: *Cakraṁ pāṇitalena so=py=ud=avahat tasy-āpi śārṅgaṁ dhanur=nāśāy-āsuhṛdāṁ sukhāya suhṛdāṁ tasy-āpy=asir=Nandakaḥ*. A Gupta inscription mentions him as carrying *cakra* and *gadā* (*cakragadādharasya*, *CII*, III, No. 17, p.75, l.26); he is called 'the wielder of discus—*Cakrabhṛt* (*Ibid*, No. 14, p. 61, l. 27), *Cakradhara* (*Ibid*, No. 47, p. 220, l.2), *Cakrapāṇi* (No. 55, p. 237, l.13; No. 56, p. 248, l.12). His bow was called *Śārṅga* in consequence of which he received the appellations *Śārṅga-pāṇi* (*Ibid.*, pp. 146, 176 (l.32) and *Śārṅgin* (*Ibid.*, pp. 54 (l.17), 83 (l.22). For a reference to four-armed Viṣṇu, cf. *Ibid.*, No. 19, p. 89, ll.1-2; *Jayati vibhuś=caturbhujaḥ catur=arṇṇava-vipulasalila-paryaṅkaḥ, Jagataḥ sthity=utpattinyadihetur=garuḍaketuḥ*. Also cf. *YY*, IV.30: *Viṣṇor=iv-odyatagadārathapāda-pāṇeḥ*. *Rathapāda* here denotes a wheel.

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are preserved in the Mathura Museum (Nos. M.M. 1010;[1] M.M. 3550[2]), but they are very much mutilated and the objects held in the remaining hands do not fully correspond to the above description. A stone relief from Badami depicting the eight-armed god described as Vaikuṇṭha and reproduced by T. A. Gopinatha Rao on Plate LXXV of his *Elements of Hindu Iconography* (Vol. I, Part I, p. 256) is rightly taken as Viṣṇu by Dr. J. N. Banerjea. Here Viṣṇu shows in his four right hands a discus, an arrow, a mace and a sword, and in the three left ones a conchshell, shield and a bow, the fourth one being in *kaṭihasta* pose. This partially corresponds to the description given by our author. As to the four-armed Viṣṇu, Dr. V. S. Agrawala has shown that the earliest form is one in which he holds his right natural hand in the *abhaya-mudrā* (*śāntida* of Varāhamihira) and an *amṛtaghaṭa* in the left one, the extra hands carrying a *gadā* and a *cakra*, and that this form evolved from that of Bodhisattva Maitreya.[3] The form next to be evolved was that described by our author, and some specimens illustrating our account are preserved in the Mathura Museum (Fig. 3).[4] The usual form with conch, wheel, mace and lotus evolved last and is illustrated by numerous specimens of the Gupta and subsequent periods hailing from different parts of the country. Two-armed statues of Viṣṇu are extremely rare. A two-armed colossal *sthānaka-mūrti* from Rupwas near Fatehpur Sikari (U.P.) wrongly described as Buddha or Sūrya by Carlleyle and rightly regarded as Viṣṇu by J. N. Banerjea, carries in its two hands a conch and a disc.[5]

ŚIVA. Śiva (IV.30; XLIX.2), also known as Hara (XLII.52), Rudra (XLV.6, 10), Śaṅkara (LIII.3; LXXXV. 75), Śambhu (LVII.43; LIX.19), Īśa (XXXIV.2; LXXIII. 20; XCVIII.1), Īśāna (XI.13, 17,), Parameśvara (*TY*, 1.2), Trinayana (XLVII.77) and Trinetra[6] (*BY*, XVI.5),

1. *JISOA*, V, p. 124; *JUPHS*, XXII (1949), p. 106.
2. *JUPHS* (N. S.), II, Pt. II, pp. 17-19.
3. *Brahmanical Images in the Mathura Art*, p. VII, Nos. 87, 912, 933, 1229; *JISOA*, V, p. 124, Pl. XIV(2).
4. V. S. Agrawala, *Brahmanical Images in Mathura Art*, Nos. 956, 2007, 2052, 2487, 512; *JUPHS*, Jan. 1932, Pl. 2, fig. 3.
5. *CASR*, VI, p. 20; *DHI*, pp. 400-401, fn. 1.
6. An allusion to his three eyes which form an important iconographic feature of the god.

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along with the last two gods makes up the Hindu Trinity. He is said to preside over the 5th year of the quinquennial *yuga* of the 60-year cycle (VIII.24), a variegated halo round the sun or the moon (XXXIV.2), the constellation of Ārdrā (XCVII. 4), the *tithi ekādaśī* (XCVIII.1) and the north-eastern region (LIII.3; LXXXV.75). While defending women against the allegations levelled against them by men, Varāhamihira states that the whole world right from Brahmā to the minutest worm is based on the union of the male and female principles and illustrates it by telling us that the greed of having a look at a woman made even Śiva assume four faces.[1] Utpala explains this allusion by referring to the Paurāṇic legend that once the celestial nymph Tilottamā was circumambulating Śiva in whose lap was seated Pārvatī; Śiva, afraid of offending Pārvatī, created four faces in four quarters to look at the peerless beauty of the divine courtezan.[2] The myth that Śiva burnt Kāma, the god of love, to ashes is alluded to (*Hara-dagdha-mūrteḥ*, LXXVII.14). Mention is also made of Śiva's hosts called Pramathas (LV.15) or Gaṇas (LVIII.9-11). It was believed that any unnatural behaviour in the images of Rudra and other guarding deities of the quarters forebodes evil to the cattle, indicating Śiva's association with animals (XLV.10). Varāhamihira refers to temples dedicated to Rudra (XLV.6) and gives the mode of representing him in human as well as phallic form (*liṅga*).

The high antiquity of the representation and worship of Rudra-Śiva in both anthropomorphic and phallic forms is

1. आब्रह्मकीटान्तमिदं निबद्धं पुंस्त्रीप्रयोगेण जगत् समस्तम् ।
त्रीडाऽत्र का यत्र चतुर्मुखत्वमीशोऽपि लोभाद् गमितो युवत्याः ॥
LXXIII.20.

Cf. चतुर्मुखो येन कृतश्च शम्भुः, *VP*, 4.

2. अत्र पौराणिकी श्रुतिः,
यथा तिलोत्तमायाः प्रदक्षिणं कुर्वाणाया अतिलावण्योपेताया उमाया उत्सङ्ग-स्थितायाः क्षोभभयाद् भगवता तद्रूपलाम्पट्येन तदवलोकनाय चतसृषु दिक्षु मुखचतुष्टयं सृष्टमिति ।
Cf. *Mahābhārata*, Ādi, 210.25-28.

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proved by the unimpeachable evidence of seals from Mohenjodaro and other sites and by the money minted by some early Indian and foreign rulers.[1] In later times, the *liṅga* was enshrined in the sanctum while his human representations were placed as accessories in different parts of the temple. Our author summarily describes his anthropomorphic form thus, 'Śambhu has a crescent[2] on his head, a bull for his ensign[3] and a vertically placed third eye (on his forehead); (in his two hands) he holds a trident[4] and the bow called Pināka (*Śambhoḥ śiras-īndukalā tṛtīyam=api locanaṁ c-ordhvam*) *śūlaṁ dhanuḥ pināka*m, LVII.43). Although all these emblems are well known and severally represented in plastic art, I am not aware of any image fully answering our description. Referring to his androgynous form, he further states that 'his half may consist of the half of the daughter of the mountain' (*vām-ārdhe vā girisut—ārddham*, LVII.43). This motif is styled by Utpala as *Ardhagaurīśvara* which is the same as that popularly called *Ardhanārīśvara*. Several Ardhanārīśvara busts of the Kuṣāṇa and the Gupta periods finished by the sculptors of Mathura have come down to us (Fig. 4).[5] We get also some interesting details about the shape and proportions of the *liṅga*. Thus we are told, 'The periphery of the round (uppermost) portion of the *liṅga*, measured lengthwise, should be divided into three parts; the lowermost portion should be square, the middle one octagonal and above that circular. The square section must be placed in a hole dug out in the ground and the middle one (octagonal) into that (cut) in the pedestal

1. For a comprehensive discussion of the evidence of coins and seals vide *DHI*, Ch. IV-V.

2. For epigraphical allusions to the crescent on Śiva's forehead, cf. *CII*, III, No. 18. ll. 22-3; No. 37, l. 8.

3. Cf. *BY*, XVI.6, where Śiva is called वृषवाहन. Cf. *CII*, III, No.33, l.1.

4. Cf. his names शूलभृत् (XCVII.4) and शूलधृक् (*BY*, XVI.6). Besides he is described as dwarf (वामन), ugly (विरूप), god of gods (देवदेवेश) and as lord of dreams (स्वप्नाधिपति) in *BY*, XVI.5-6.

5. V. S. Agrawala, *Brahmanical Images in Mathura Art*, Nos. 362, 800, 874. Recently a partly mutilated life-size Ardhanārīśvara figure has been found at Sagar, cf. K. D. Bajpai, *Sagar Through the Ages*, Pl. VI.

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(only the circular section being visible); (in diameter or extent) the pedestal on all the sides of the hole should be equal to the height of the visible (topmost cylindrical) section.[1] A *liṅga* lean and long beyond proportion, shorn of its sides and injured at the top was supposed to spell ruin to the country, town and its master respectively.[2]

Its adoption and patronage by a number of rulers in different parts of the country gave Śaivism a fillip. We know from inscriptions that most of the Vākāṭaka kings,[3] early Kalacuri kings, Kṛṣṇarāja, Śaṅkaragaṇa and Buddharāja[4], the Later Gupta chiefs Devagupta and Viṣṇugupta,[5] Maukhari king Śarvavarman[6], *Mahāsāmanta Mahārāja* Samudrasena of Punjab[7] and most of the Maitraka rulers of Valabhi[8] were all devotees of Śiva and bore the sectarian title *Parama-Māheśvara*, i.e. devout worshipper of Maheśvara.

(I) *PĀŚUPATA.* While dealing with the installation of images, Varāhamihira lays down that the image of Śambhu

1. लिङ्गस्य वृत्तपरिधिं दैर्घ्येणासूत्र्य तत् त्रिधा विभजेत् ।
मूले तच्चतुरस्रं मध्ये त्वष्टाश्रि वृत्तमतः ॥
चतुरस्रमवनिखाते मध्यं कार्यं तु पिण्डिकाश्वभ्रे ।
दृश्योच्छ्रायेण समा समन्ततः पिण्डिका श्वभ्रात् । (LVII.53-54).

Cf. Utpala—श्वभ्रात् पीठविवरात् समन्ततः सर्वासु दिक्षु पीठिका दृश्योच्छ्रायेण समा कार्या दृश्यभागस्य परिवर्तुलस्य लम्बो या उच्छ्रायस्तत्समः । एतदुक्तं भवति यावत्प्रमाणं वृत्तभागस्य दैर्घ्यं तावत्प्रमाणं समन्ततः पीठिकापृथुत्वं कार्यमिति ।

Dr. J. N. Banerjea's rendering of the last line, viz., "the height of the visible (i.e., the topmost cylindrical) section from the pedestal hole should be equal to its periphery" (*DHI*, pp. 588-9), is not borne out by the text or commentary thereon.

2. कृशदीर्घं देशध्नं पार्श्वविहीनं पुरस्य नाशाय ।
यस्य क्षतं भवेन्नस्तके विनाशाय तल्लिङ्गम् ॥ (LVII.55).

3. V. V. Mirashi, *CII*, V, pp. xl ff.
4. V. V. Mirashi, *CII*, IV, Introduction, p. cxlvii.
5. *CII*, III, No. 46, l.3.
6. *Ibid.*, No. 47, l.1.
7. *Ibid.*, No. 80, l.5.
8. *Ibid.*, Nos. 38 and 39.

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must be consecrated by the ash-besmearing Brāhmaṇas (*Śambhoḥ sabhasma-dvijān*, LIX.19) whom the commentator takes to be the followers of the Pāśupata sect. He appears to be justified in view of the fact that besmearing the body with ashes thrice a day and sleeping on ashes was an important practice of the Pāśupatas.[1] Yuan Chwang refers to them as ash-besmearing *tīrthikas*. Mathura was an important centre of the Pāśupata school in the Gupta period.[2] The Pāśupatas attained some importance towards the close of the sixth century A.D. The early Kalacuri king Kṛṣṇarāja and Anantamahāyī, queen of Buddharāja, were followers of the Pāśupata sect.[3] Yuan Chwang found large bodies of the Pāśupatas at Jālandhara, Ngo-hi-chita-lo (Ahicchattra) Malakūṭa (Tamil country), Malwa, Maheśvarapura, Lang-kie (ka)-lo, Bannu and Khotan.[4] Bhaṭṭotpala further states that Śiva images should be consecrated in accordance with the mode prescribed in the *Vātula-tantra* or some other *tantra* (*Vātula-tantra-okten-anyatantroktavidhinā vā Śambhoḥ*, on LIX.19). The *Vātulatantra* is no more extant.

(II) *KĀPĀLIKA*. Varāhamihira also refers to the Kāpālikas (LXXXVI.22) who were so called because they used human skulls as receptacles of food and wore garlands of skulls. Utpala tells us that the Kāpālikas were well-known ascetics (*Kapālikaḥ prasiddhas=tapasvī*), indicating their popularity and large number in his time. Vṛddha-Śrāvaka (L.20), literally meaning an old ascetic, denotes, according to Utpala, a Kāpālika.[5] This sect appears to have attained some popularity in the Panjab and North-western India in the sixth and seventh centuries A.D. The Mandasor stone

1. Vide *Pāśupata Sūtras*, pp. 8-9. Cf. also Madhvācārya, *Sarvadarśana-saṅgraha* (Cowell's tr.), p. 108; *Atharvaśiras Upaniṣad* quoted in J. Muir's *Oriental Sanskrit Texts*, IV, p. 358.

2. Cf. Mathura Pillar Inscription of the time of Candragupta II, *EI*, XXI, pp. 1 ff.

3. *CII*, IV, No. 12, l.4; No. 14, ll. 32-33. The *Dūtaka* of the Abhona pls. was named Pāśupata, vide *CII*, IV, No. 12, l.34. According to some scholars, the Elephanta caves were excavated in the second half of the sixth century A.D. when the Kalacuri power was at its peak, and the cave temple was caused to be carved by the Pāśupatas as is indicated by the figure of Lakuliśa in the recess at the north end of the shrine in the western court of the caves. Vide *CII*, IV, p. cxlviii; Hiranand Sastri, *A Guide to Elephanta*, pp. 33 ff.

4. *On Yuan Chwang*, I, pp. 296, 333; II, 229, 242, 251, 262, 287, 296.

5. Cf. *BJ*, XV. 1, where the word *vṛddha* is used to denote a Kāpālika.

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inscr. of Yaśodharman-Viṣṇuvardhana (A. D. 532) refers to Śiva as wearing a chaplet of bones on his head.[1] A copper plate inscr. of Samudrasena (A.D. 612-13) found at Nirmand near the right bank of the Sutlej refers to a temple of Śiva under the name Kapāleśvara.[2] Mahendravarman's *Mattavilāsa-prahasana* depicts the revelry of an innocent Kāpālika whose *kapāla* was taken away by a dog. The ascetics wearing on their heads garlands of bones and skulls whom Yuan Chwang[3] saw at Kapiśā and other places were no doubt affiliated to this sect.

SŪRYA. Although the worship of the Sun-god had been in vogue in India from very early times, in northern India it underwent reorientation under the impact of the East Iranian Sun cult. The story of the importation of the Persian form of the Sun worship is related in several Purāṇas, viz., *Bhaviṣya*, *Varāha*, *Śāmba*. We learn from the *Bhaviṣya-purāṇa*[4] that Śāmba, the son of Kṛṣṇa by Jāmbavatī, got cured of leprosy by worshipping Sūrya, installed his image in a large temple at Mūlasthānapura[5] (mod. Multan, probably so called because it was the original (*mūla*) centre (*sthānaa*) of the introduction of the Iranian Sun cult) on the bank of the river Candrabhāgā (Chenab), and when no Brāhmaṇa priest was prepared to conduct Sun-worship in its new form, brought from Śākadvīpa (E. Iran) eighteen families of the Maga priests who are described as the sons of the Sun from Nikṣubhā, the daughter of Ṛgjihva or Sujihva. These Magas were none else than the fire and Sun-worshipping Magi priests of Iran. Alberuni (I.21)[6] was fully aware of this identity when he wrote,

1. शिरसि विनिबध्नन् रन्ध्रिणीमस्थिमालाम् ।
CII, III, No. 35, l.3.

2. *Ibid.*, No. 80, l.9. Nāgavardhana, a nephew of Pulakeśin II, sanctioned a grant for the worship of Kapāleśvara and for the maintenance of Mahāvratins attached to the temple, vide *JBBRAS*, XIV, p. 26,

3. S. Beal, *Si-yu-ki*, Vol. I, pp. 55, 76.

4. Brahmaparvan, Ch. 139 ff.; see also D. R. Bhandarkar, Foreign Elements in Hindu Population, *IA*, XL (1911), pp. 17 ff.

5. It was also known as Śāmbapura, evidently after the name of its founder.

6. Alberuni (I.116) also refers to a 'famous idol' dedicated to the Sun and called Āditya at Multan, 'It was of wood and covered with red Cordovan leather; in its two eyes were two red rubies. It is said to have

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"There are some Magians upto the present time in India where they are called Maga." The introduction of this reorientated form of the cult was a *fait accompli* by the Kuṣāṇa period when we find in Sūrya icons such alien features as a close-fitting waist-coat and Central Asian long boots which are in standing contrast to his earlier form at Bodh-Gaya where he is represented as wearing a *dhoti* and riding a four-horsed chariot. Its continuance in this alien form upto the late Gupta period is attested by Varāhamihira who, himself a Maga, lays down that the proper persons to instal a Sūrya image were Magas (LIX. 19) and gives the following details about his icons[1] which also point to the same conclusion. "The nose, forehead, shanks, thighs, cheeks and breast of the Sun should be elevated; he should be attired in the Northerners' dress being covered from feet to the breast; holding in his two arms two lotus flowers born of his own hands (i.e. by their stalks);[2] he wears a crown and his face is adorned with ear-rings; he has a long necklace and the girdle called *viyadga* (Sanskritised form of the Persian name *Aiwiyaonghen* which a Zoroastrian is enjoined to wear) round his waist; he is covered by a *kañcuka*, his face being shown as possessing the lustre of the inside of a lotus, smiling and pleasant; he has a halo brilliant on account of gems; a Sun image fashioned in this manner confers blessings on its maker." *Kañcuka* is undoubtedly the long close-fitting

been made in the last Kṛtayuga'. The Sun-cult appears to have been popular in Multan region even as late as the eleventh century A.D. as may be inferred from the following statement of Alberuni—'The Hindus of Multan have a festival which is called Śāmbapura-*yātrā*; they celebrate it in honour of the Sun and worship him' (*Ibid.*, p. 184).

1. नासाललाटजङ्घोरुगण्डवक्षांसि चोन्नतानि रवेः ।
कुर्यादुदीच्यवेषं गूढं पादादुरो यावत् ॥
बिभ्राणः स्वकररुहे बाहुभ्यां पङ्कजे मुकुटधारी ।
कुण्डलभूषितवदनः प्रलम्बहारो वियद्गवृतः ॥
कमलोदरद्युतिमुखः कञ्चुकगुप्तः स्मितप्रसन्नमुखः ।
रत्नोज्ज्वलप्रभामण्डलश्च कर्तुः शुभकरोऽर्कः ॥ LVII.46-8.

2. Cf. Utpala—स्वकररुहे स्वनखे बाहुभ्यां पङ्कजे कमले बिभ्राणः सहजनखस्य करलग्नत्वात् सपत्रभागस्य बाहोर्नालत्वाच्च कमले बिभ्राणः ।

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coat found in Sūrya images, and the long boots, though not specified, are implied in the *udīcyaveṣa*. Curiously enough, no details are given regarding Sūrya's chariot, his charioteer Aruṇa, his attendants Daṇḍa and Piṅgala and his wives Uṣā and Pratyūṣā who are not infrequently represented in art. Many specimens of the Gupta age answering this description are preserved in the Mathura Museum.[1] Attention may also be invited to a stone relief of Sūrya, carved in a *caitya*-window of the Śiva temple at Bhumara, which shows the god with a tall cylindrical head-dress (*mukuṭa*) and a plain halo behind his head, holding lotus flowers in both of his hands raised upto shoulders, and wearing long coat (*kañcuka*) tied on the waist with a sash (*viyadga*) and long boots of soft leather. He is attended by two male figures, perhaps Daṇḍa and Piṅgala, similarly clad.[2] It may be noticed here that in Kuṣāṇa art Sūrya is usually shown with a cluster of lotuses in the right hand and a dagger in the left and seated in a chariot drawn by two or four horses.[3] It is interesting to note that a verse of Kāśyapa, quoted in the commentary, gives us these features of the Kuṣāṇa art except for the chariot. Thus we are told that Āditya should be represented as youthful and lustrous, wearing a garland, *kirīṭa* and a mail and holding a sword and lotuses in his hands.[4]

The Sun cult appears to have been very popular during our period. The Maitraka ruler Dharapaṭṭa[5], and the Puṣpabhūti rulers of Thanesar Rājyavardhana, Ādityavardhana and Prabhākaravardhana[6] were *Paramāditya-bhaktas*, i.e. devout worshippers of the Sun. We learn from inscriptions of the existence of a number of Sun temples in different parts of North India in the Gupta and late Gupta times. We have references

1. V. S. Agrawala, *Brahmanical Images*, etc., Nos. 595, 1058, D. 3, D. 15, D. 33, 890, 1208, 1200, 2339, D. 16.

2. *MASI*, No. 16, p. 13, Pl. XIV(a).

3. V. S Agrawala, *Brahmanical Images*, Nos. 269, D 46; see his remarks.

4. आदित्यस्तरुणः स्रग्वी कवची खड्गधृत् तथा ।
तेजस्वी पङ्कजकरः षड्वर्गश्च किरीटवान् ॥

5. *CII*, III, No. 38, p. 165, l.10. Some Gurjara chiefs of Nāndīpurī branch also were devotees of Sūrya, Vide *CII*, IV, No. 16, l. 4, No. 21, ll. 1-2; No. 24, l. 1.

6. *Ibid.*, No. 52, p. 232, ll.2, 3, 6.

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to the temples dedicated to Sūrya at Indor in the Bulandshahar District of U.P.[1] and on the bank of the Tons to which jointly with a Viṣṇu temple the village of Āśramaka was granted.[2] The Gwalior inscr. of Mihirakula records the building of a Sun temple at Gopagiri, modern Gwalior.[3] The Deo-Baranark inscr. of Jīvitagupta II purports to record the grant of a village to the Sun under the name Varuṇavāsin.[4] The Mandasor stone inscr. of Kumāragupta and Bandhuvarman[5] informs us that a weavers' guild built a temple of Sūrya at Daśapura in A.D. 437-8 and repaired the same in A.D. 473-74. Its popularity in the region round Kanauj is testified to by Yuan Chwang who refers to a temple of the Sun god there.[6]

The Sun, under various names, was believed to preside over the 2nd year of the quinquennial *yuga* (VIII.24), the constellation of Hasta (XCVII.4) and the *tithi dvādaśī* (XCVIII.1).

AGNI. Judging from the number of hymns dedicated to him, Agni was one of the first three deities of the Ṛgvedic pantheon, others being Indra and Soma.[7] But the gradual decline in the popularity of Vedic sacrificial cult affected adversely the status of Agni in the hierarchy of gods and in the wake of Paurāṇic mythology he was relegated to the office of a Lokapāla. Varāhamihira refers to him by various names denoting fire, e.g., Agni[8], Dahana[9], Hutabhuj[10], Hutavaha[11], Hutāśa[12] and Anala[13]. He is represented as presiding over an eclipse, a diamond resembling the *śṛṅgāṭaka* fruit and hued like a tiger's eye, a pearl having the lustre of smokeless fire or lotus, the constellation of Kṛttikā and the fourth *yuga* of the Jovian cycle and as causing quake in the 2nd part of the day.[14]

1. *Ibid.*, No. 16, p. 70.
2. Khoh CP. of Mahārāja Śarvanātha, *Ibid.*, No. 28.
3. *Ibid.*, No. 37, pp. 162-63.
4. *Ibid.*, No. 46, p. 216, l.12.
5. *Ibid.*, No. 18, pp. 81 ff.
6. Watters *op. cit.*, I, p. 352.
7. Macdonell, *Vedic Mythology*, p. 88.
8. V. 19, 22; XI.23; XCVII. 4.
9. XXXII.7; XCVII.4.
10. LXXIX.9; *YY*, VI.6.
11. LXXXV.75.
12. XI.11; VIII.23,
13. VIII. 26; LIII.3.
14. V. 19, 22; LXXIX. 9; LXXX. 8. XCVII. 4; VIII. 23, 26; XXXII. 7.

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He is said to be the father of 25 unnamed comets and of 120 comets called Viśvarūpa (XI. 10-11, 23). He was regarded as one of the eight guardians of the quarters presiding over south-east (LIII.3; LXXXV.75) which came to be known as *Āgneyī*. As we have seen above, Agni retains his former association with Indra. Agni is described as seven-rayed (*sapta-marīci*, XLII. 37) and as seventongued (*sapta-jihva*, LXXIII.16). No other detail about his iconography is given. It is interesting to note that Agni is usually represented in sculpture with flames issuing from his body. Thus, for example, a Paharpur relief shows twoarmed Agni with seven flames emanating from his body on either side and holding a rosary and *kamaṇḍalu* in his right and left hands respectively.[1]

YAMA. Yama is also referred to by the patronymic Vaivasvata (XLII.52). He is described as causing an eclipse and a blue halo round the sun or moon and as presiding over the southern quarter, the asterism Bharaṇī, *caturthī* and the *karaṇa* called Viṣṭi. Black colour is especially associated with him. Thus black diamonds shaped like serpent's mouth and black pearls are represented as belonging to him and he is said to have given a black ornament to Indra's banner.[2] Utpala styles him as 'the lord of manes (*pitṛpati*).

As to his iconographic features, we are simply told that he holds a staff in his hand and rides a buffalo (*Daṇḍī Yamo mahiṣagaḥ*, LVII.57; cf. *prodyata-daṇḍa-hastaṁ Yamam*, *YY*, VI.8).[3] Several are the images representing Yama with a staff or club, but no early Yama image with a buffalo is known so far. Thus in a medallion from the Śiva temple at Bhumara we see the god holding an indistinct round object in his right hand and a staff in the left and attended by a fly-whisk-bearing female attendant on either side; he is, however, seated here on a throne or bedstead, not on a buffalo.[4] But some sculp-

1. *MASI*, No. 55, p. 48, pl. XXXII (b).

2. V. 19, 23; XXXIV.2; LIII.3; LXXXV.75; XCVII.4; XCVIII. I; XCIX. 1; LXXIX.8; LXXX.7; XLII.43, 52. Cf. *YY*. VI.8, where black-flowers, flag and perfumes are prescribed for him.

3. Bāṇa in his *Harṣa-carita* describes canvass paintings of Yama riding a terrific buffalo.

4. *MASI*, 16, p. 12, Pl. XII c.

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tures representing Yama riding a buffalo are found decorating some mediaeval temples in Orissa (Fig. 5) and elsewhere.

KUBERA. Kubera, also called Vaiśravaṇa, is for the first time mentioned and connected with the Yakṣas (called Itarajana or Puṇyajana) and riches in a passage of the *Atharvaveda* (VIII.10.28). Our author associates him with the Yakṣas[1] and refers to him as Dhanada (XXXIV.3; *YY*, VI.16), Dhaneśa (XLII.52) and Dhaneśvara (*YY*, XI.17), evidently in allusion to his overlordship of riches. He was believed to preside over an eclipse (V.19, 21) and cause a halo coloured like peacock's neck round the sun or the moon (XXXIV.3). Usually he was regarded as a Lokapāla governing the northern quarter which was consequently known as *Kauberī* (XIII.1; XLVII. 18; LXXXVI-25). But curiously enough in two verses of the *Bṛhatsaṁhitā* (LIII.3; LXXXV.75) Varāhamihira accords this position to the moon-god. We shall have occasion to say more on this question subsequently.

His iconographic features are thus given : Kubera is pot-bellied, has a man for his mount and a *kirīṭa* (topped crown) is placed on his head slanting to his left (*Naravāhanaḥ Kubero vāmakirīṭī bṛhat-kukṣiḥ*, LVII.57). The *Yogayātrā* (VI.16) mentions *gadā* as one of the emblems held by him. According to a variant reading (*khara-vāhana*) his mount is a donkey. It is curious to note that in this sketchy description of Kubera's iconography, nothing is said about his purse, his *nidhis Śaṅkha* and *Padma*, and Hārīti, usually associated with him in contemporary art. Although no image of Kubera belonging to the Gupta or later periods riding on a man has been noticed, a Bharhut relief depicts him (there called Kupiro) standing over a malformed man (perhaps a Yakṣa); he is slightly pot-bellied and his head-dress aslant on his left (Fig. 6). This figure, it would appear, fully answers the *Bṛhatsaṁhitā* description. Some Śuṅga and Kuṣāṇa terracotta figurines of *naravāhana* Yakṣas and Yakṣīs are preserved in Mathura Museum.

1. In *YY*, VI.1 (l.1) which names the guardians of the quarters the lord of the northern quarter is called a Yakṣa. It appears to be a veiled allusion to Kubera as the king of Yakṣas.

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Other gods

The details that we get about a few other Vedic gods may be noted here. The twin-gods Aśvins who, 'judged by the frequency with which they are invoked', were in importance next only to Indra, Agni and Soma in the Ṛgvedic pantheon,[1] are referred to as presiding over the 11th quinquennial *yuga* of the Jovian cycle (VIII.23) and the constellation of Aśvinī (XCVII.4). The word *aśvin* is used to denote the numeral two (XCVII.1). They are described as physicians par excellence (*Aśvinau ca bhiṣagvarau*, XLVII.56). Viśvakarman heads the list of the gods who gave ornaments to *Indra-dhvaja* (XLII.42). There is a reference to the image of Viśvakarman (XLV.12), but no details about his iconography are given. In classical Sanskrit the word *bhaga* stands among other things for female genital organ and is synonymous with *yoni* and consequently the latter word is also used to denote the deity Bhaga. He is the presiding deity of the 12th quinquennial *yuga* of Jupiter's cycle (VIII.23) and of Pūrvā-Phalgunī (XCVII.4). Pūṣan, the lord of the asterism Revatī (XCVII.5), is one of the constituent deities of Vāstupuruṣa (LII.44). Aryaman presides over Uttarā-phalgunī (XCVII.4) and the *karaṇa* called Taitila (XCIX.1). Tvaṣṭṛ is associated with Sūrya.[2] He gave an ornament to Indra's banner and presides over the constellation of Citrā (XCVII.4). Mitra appears to be closely associated with Agni.[3] He presides over Anurādhā (XCVII.4) and Kaulava *karaṇa* (XCIX.1). Vāyu and other names of wind are used to denote both the physical phenomenon and the deity representing it. Thus the god is called Vāyu[4], Pavana[5], Anila[6], Śvasana[7], Māruta[8] and Samīraṇa.[9] He is

1. Macdonell, *Vedic Mythology*, p. 49.
2. रथचक्राभं दशमं सूर्यस्त्वष्टा प्रभायुक्तम् । XLII.46. In the Vedic pantheon Tvaṣṭṛ probably represented the creative aspect of Sun. Cf. *Vedic Mythology*, p. 117.
3. The six-month period presided over by Agni is known as Mitra, V. 22. Cf. *Rv* 10.8.4; 3.5.4; 5.3.1, etc. where Mitra is closely connected with Agni.
4. XI.24; XXXII.8; XLV.63.
5. LIII.3; LXXXV. 75; XCVII.4.
6. XXXII.7.
7. XXXIV.2.
8. XCIX.2.
9. XLV.45.

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the guardian of the north-western region (LIII.3; LXXXV.75), the presiding deity of the asterism Svāti, the *karaṇa* called Kiṁstughna, an earthquake in the first part of the day and a dark halo round the sun and the moon. Seventy-seven comets named Aruṇa are said to be his sons. Sacrifices were offered to him in order to avert the evil effects of portents partaining to rain and wind.[1] Nirṛti occurs in the later Saṁhitās as a god of evil and in later times he was regarded as a Lokapāla protecting south-west.[2] He is also said to preside over the constellation of Mūla (XCVII.5) and to cause a dove-coloured halo round the sun or moon (XXXIV.2). But the idea underlying the conception of Nirṛti underwent a fundamental change. He came to be deprived of his divinity and conceived as the lord of demons as is clearly stated by Utpala.[3] In some of the Purāṇas (e.g., *Viṣṇudharmottara*) Nirṛti is described as the wife of Virūpākṣa, the lord of the Rakṣas. Varāhamihira gives no details about his iconography but simply states that he should be carved on a piece of cloth (*YY*, VI.10).

II. *Post-Vedic Gods*

Vaiṣṇava gods

As we have seen above, there is reason to believe that in addition to Kṛṣṇa, four other Vṛṣṇi heroes—Baladeva (Saṅkarṣaṇa), Pradyumna, Śāmba and Aniruddha—were also deified and worshipped independently in the early centuries of the Christian era. The first three of them are named by Varāhamihira.

BALADEVA. In the syncretic religion of the Bhāgavatas, Baladeva was closely associated with Vāsudeva-Kṛṣṇa from the very beginning. This is evidenced by a number of epigraphic records which mention them together. Varāhamihira, who devotes one full couplet to the description of his icons, lays down that 'Baladeva should be depicted with a ploughshare in his hand, eyes round and rolling owing to inebriety, and with one ear-ring, his complexion being as white as a conch-shell, lotus-stalk or the moon' (*Baladevo halapāṇir=*

1. XCVII .4; XCIX.2; XXXII.7-8; XXXIV.2; XI.24; XLV.45, 63-64.
2. LIII.3; LXXXV.75; *YY*. VI.1.
3. Cf. Comm. on XCVII.5 (*Nirṛtī rākṣaso mūlasya*); LXXXV. 75 (*Rākṣasānāṁ adhipatiḥ*); LIII.3 (*Rākṣasādhipatiḥ*).

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mada-vibhrama-locanaś=ca kartavyaḥ, kuṇḍalam=ekaṁ bibhrat śaṅkh-endu—mṛṇāla-gauratanuḥ, LVII.36). A two-armed figure of Baladeva of the Yakṣa type from Mathura, now preserved in the Lucknow Museum and generally regarded as 'the earliest Brāhmaṇical image', shows him standing under the canopy of serpent-hoods, wearing *kuṇḍala* only in the left ear and holding a *musala* (pestle) and a *hala* (plough-share) in his hands (Fig. 7).[1] In the Kuṣāṇa art, he is often represented as holding a drinking cup in one of his hands, evidently alluding to his addiction to wine.[2] A four-armed Balarāma image of the Gupta period is to be seen in the Mathura Museum (No. 1399). Reference must also be made to an early Balarāma image hailing from Tumain in the Guna district of Madhya Pradesh : it represents the god standing under the canopy formed by the seven hoods of the snake, holding *musala* and *hala* in his right and left hands respectively and wearing *kuṇḍalas* differing from one another in form, his eyes being shown rolling.[3] In later art, *hala* and *musala* are his constant emblems. A four-armed sandstone figure from Paharpur (late Gupta period) depicts him standing under the canopy of a six-hooded serpent, holding a plough in the upper left hand, a mace in the upper right and a drinking vessel (in which a female attendant on right is about to pour wine from a handled jug) in the lower right, the lower left hand resting on his thigh. The two *kuṇḍalas* he wears are of different designs, one being apparently of the conchshell bangle and the other of the *makara-kuṇḍala* type (Fig. 8).[4] It seems that later artists modified the iconographic formula of showing Balarāma with only one *kuṇḍala* and represented him wearing *kuṇḍalas* in both the ears but of different shapes and materials.

PRADYUMNA. He is simply described as carrying a bow and as being of comely form, probably because he was regarded as identical with Kāmadeva (*Pradyumnaś=cāpabhṛt surūpaś=ca*, LVII.40).[5]

1. V. S. Agrawala, *Brahmanical Images in Mathura Art*, p. VIII.
2. Mathura Museum, Nos. C 19, D 36, etc.
3. G. H. Khare, *Mūrti-vijñāna*, Pl. XI.
4. *MASI*, No. 55, p. 45, Pl. XXII (b).
5. For a Kuṣāṇa terracotta figure of Kāmadeva from Mathura standing on the prostrate body of Śurpaka holding a bow and a sheath of arrows in his left and right hands respectively see V.S. Agrawala, *Indian Art*, p. 316, fig. 241.

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ŚĀMBA. We have seen above the role that Śāmba played in introducing the new form of the solar cult. It was probably due to this reason that Śāmba was expelled from the galaxy of Brāhmaṇical gods[1] and his image is not described in most of the Purāṇas. But a Sun-worshipper as he was, Varāhamihira accords him the divine status due to him and lays down that he should be shown with a mace in his hand (*Śāmbaś=ca gadāhastaḥ*, LVII.40). Utpala adds that he should be represented as two-armed (*dvibhuja*). Similar direction for making his image is contained in the *Viṣṇudharmottara* which adds that he should have a very comely appearance (BK, III, Ch. 85 : *Śāmbaḥ kāryo gadāhastaḥ surūpaś=ca viśeṣataḥ*). No image that may be definitely said to be Śāmba's is known. But a Mathura sandstone figure of the Kuṣāṇa period holding a club in his right hand and a staff in the left and riding in a car which is taken to be Sūrya by A. K. Coomaraswamy[2] is regarded by J.N. Banerjea as an image of Śāmba.[3] Similarly, another image of the same period, holding a cup and a staff in his left and right hands respectively and flanked by two small female figures is a Bacchanalian Yākṣa according to Coomaraswamy[4] but Śāmba according to Banerjea.[5]

Śaiva gods

GAṆEŚA. The genuineness of *BS*, LVII.58[6] which describes iconographic features of the lord of the Pramathas (*Pramathādhipa*), i.e., Gaṇeśa, is doubtful. It is not found in most of the manuscripts. Although Kern retains this couplet within parenthesis (Bibliotheca Indica ed. Ch. 58, v. 58), he

1. Another reason of his expulsion may have been his birth from Jāmbavatī, the non-Aryan consort of Vāsudeva. According to epic and Purāṇa tradition, she was a daughter of the Ṛkṣa king through Śiva's grace. The *Mahāummagga-Jātaka* makes her a Caṇḍāla woman. See *Comprehensive History of India*, II, p. 388.

2. *Catalogue of the Indian Collection in the Museum of Fine Arts, Boston*, Vol. II (Sculpture), p. 46.

3. *JISOA*, XII, pp. 129 ff.

4. Coomaraswamy, *History of Indian and Indonesian Art*, p. 68.

5. *JISOA*, XII, pp. 129-34.

6. प्रमथाधिपो गजमुखः प्रलम्बजठरः कुठारधारी स्यात् ।
एकविषाणो बिभ्रन्मूलककन्दं सुनीलदलकन्दम् ॥

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suggests it to be an interpolation. It is included in V. S. Sastri's edition (Ch. 58) which does not even bracket it. It is altogether omitted by Sudhakara Dvivedi. It may be pointed out that a lengthy quotation from Kāśyapa extracted by Utpala first describes the image of Vināyaka, i.e. Gaṇeśa.[1] But as this extract from Kāśyapa also describes the icons of Vitastā, Narasiṁha, Varāha and Caṇḍikā not described by our author, the same cannot be taken to prove the authenticty of the verse in question. Be that as it may. Varāhamihira's knowledge of Gaṇeśa, however, can be inferred from the facts that at least once he mentions Vināyaka in singular (i.e. Gaṇapati, XLV.12) and pays obeisance to Gaṇeśa in the beginning of the *Ṭikaṇikayātrā* (I.2), probably because he had come to be regarded as the remover of obstacles. It will not be quite out of place here to make a cursory survey of the various vicissitudes through which this cult had to pass. The oldest authoritative account of the propitiation of the Vināyakas is to be found in the *Mānava-gṛhyasūtra* (II. 14)[2] which gives their number as four, viz., Śālakaṭaṅkaṭa, Kūṣmāṇḍarājaputra, Usmita and Devayajana.[3] The *Yājñavalkya-smṛti* (I.271) states that Vināyaka was appointed by Rudra and Brahmā as leader of the Gaṇas and assigned the function of removing obstacles in human acts. It mentions the above-mentioned four Vināyakas (Sammita for Usmita) but regards them as the four names of one Vināyaka who is described as the son of Ambikā[4] (*ibid*, I.285). Thus the four Vināyakas of the *Mānavagṛhya* are transformed into one Vināyaka-Gaṇapati. But Sir R. G. Bhandarkar[5] questions the authenticity of the Gaṇapati-prakaraṇa of the *Yājñavalkya-smṛti*, places it not earlier than the sixth century A.D. and suggests that the cult of Gaṇa-

1. एकदंष्ट्रो गजमुखश्चतुर्बाहुर्विनायकः ।
लम्बोदरः स्थूलदेहो नेत्रत्रयविभूषितः ॥

2. The *Baudhāyana-dharmasūtra* (II.5.83-9) which prescribes the propitiation of Vighna, Vināyaka, Vīra, Sthūla, Varada, Hastimukha, Vakratuṇḍa, Ekatuṇḍa and Lambodara, is of doubtful authenticity.

3. The *Baijavāpa Gṛhya*, cited by Aparārka on *Yājñavalkya* I. 275, replaces Usmita and Devayajana by Sammita and Mita.

4. Viśvarūpa and Aparārka take the Vināyakas to be four; but Vijñāneśvara makes them six by regarding Śāla and Kaṭaṅkaṭa, and Kuṣmāṇḍa and Rājaputra as distinct.

5. *Vaiṣṇavism, Śaivism* etc., p. 212.

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pati must have come into vogue 'between the end of the fifth and the end of eighth century.' This view must be substantially modified in view of the fact that Mathura[1] and Bhitargaon Brick temple have yielded Gaṇapati figures assignable to the early Gupta period. That the cult of Gaṇeśa must have developed considerably prior to Varāhamihira is apparent from his salutation, among others, to this god. It must be mentioned here that Gaṇeśa is the first in the list of gods invoked by him. The long catalogue of the descriptive names of Gaṇeśa in the *Amarakoṣa* (I.1.38), which must have been composed not later than the 5th or 6th century, also points to the same conclusion. To sum up, the concept of Gaṇapati must have been in existence in 3rd or 4th century and the date of the Gaṇapatiprakaraṇa of the *Yājñavalkya-smṛti* need not be brought down to the sixth century A.D. It is interesting to note that Varāhamihira also knows numerous troublesome Vināyakas and Gaṇas whom he associates with such demoniac beings as Piśācas, Rākṣasas, serpents and Asuras (e.g. LVIII.9).

SKANDA Versus VIŚĀKHA. The worship of Skanda appears to have gained in popularity in early centuries of the Christian era, more particularly in the Gupta age. Skanda-Kārttikeya was the tutelary deity of the Yaudheyas; the Gupta emperor Kumāragupta, though styled *Parama-Bhāgavata* in his inscriptions and coins, was a worshipper of this god as can be judged from the first part of his and his son's (Skandagupta's) names, from the replacement of the *garuḍadhvaja* motif by that of peacock, the vehicle of Skanda, and from the representation of the latter on some of his coins.[2] Under the name Mahāsena, Skanda was the tutelary deity of the early Kadambas[3] and of the early Cālukyas.[4] The Bilsad stone inscr. of the time of Skandagupta refers to an ancient shrine dedicated to Svāmi-Mahāsena.[5] Kālidāsa in his *Kumārasaṃbhava* immortalises his birth-story.

1. Agrawala's *Brahmanical Images in Mathura Art*, p. 37.

2. Allan, *CCGD*, pp. 84 ff. Pl. XV, 5-14; Altekar, *Coinage of the Gupta Empire*, Pl. XIII, 11-14.

3. *IA*, VI, p. 27.

4. *Ibid*, VI, p. 74; VII, p. 162; XIII, p. 137 f.

5. *CII*, III, No. 10, p. 44, l.8. For other inscriptions connected with the worship of Skanda, vide *Ibid.*, No. 42, l. 6; No. 79, p. 286; No. 39, l.49; No. 12, l.9.

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It is now usually believed that Skanda and Viśākha along with so many other names denote one and the same deity, i.e. Kārttikeya.[1] Varāhamihira, however, seems to regard these as names of two distinct gods as can be inferred from the use of the two words in one and the same line of a stanza, one following the other immediately: In XLV.11 it is stated that an unnatural behaviour on the part of the images of Skanda and Viśākha spells evil to feudatory rulers (*Skanda-Viśākha-samutthaṁ māṇḍalikānāṁ narendrāṇām*), while XLVII.26 prescribes the drawing and propitiation, among others, of the figures of Skanda and Viśākha as a preliminary to the *Puṣya-snāna* rite (*Skandaṁ Viṣṇuṁ Viśākhaṁ ca*). Commenting on the first line, Utpala says that Skanda is the same as Kumāra and Viśākha is a certain god (*deva-viśeṣaḥ*) : in the second instance he understands Viśākha as the *graha* of Skanda (*Viśākhaṁ Skandagraham*).

For a satisfactory explanation of this curious feature, we have to go back to earlier literary and numismatic evidence. While commenting on Pāṇini V.3.99 (*Jīvik-ārthe c—āpaṇye*), Patañjali in his *Mahābhāṣya* mentions the images of Skanda and Viśākha (*apaṇye ity=ucyate tatr—edaṁ na sidhyati-Śivaḥ, Skandaḥ, Viśākha iti*)[2], indicating that he considered them as distinct from one another. The same inference can be drawn from his reference to the compound *Skanda-Viśākhau* in his commentary on a *vārtika* on Pāṇini VI. 3.26.[3] Further, among the coins of Huviṣka (2nd century A.D.), we have two types which have an important bearing on the present question: one of them bears on the reverse the figures of two gods who are named Skanda-Kumāra and Viśākha, while the other has three deities called Skanda-Kumāra, Viśākha and Mahāsena.[4] This fully demonstrates that these were names of three distinct gods and not different names of one and the same god. Our evidence leaves no room for doubt that even in the sixth century A.D. Skanda and Viśākha were worshipped as two separate gods.

1. Cf. *Amarakoṣa* I.1.39-40.
2. *Vyākaraṇa Mahābhāṣya* (Nirnaya Sagar Press, Bombay), Vol. IV, p. 403.
3. *Ibid.*, Vol. V, p. 223.
4. Gardner, *Catalogue of Indian Coins in the British Museum, Scythians and Parthians*, Pl. XXVIII, figures 22-23 (Skanda and Viśākha), 24 (Skanda, Mahāsena and Viśākha). Bhandarkar's view that here we have representation of three and four gods respectively is incorrect.

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Only half a verse is devoted to the description of Skanda's iconography. It lays down that Skanda has boy-like appearance, carries a *śakti* (spear) and has a peacock for his ensign (*Skandaḥ kumāra-rūpaḥ śaktidharo barhi-ketuś=ca*, LVII.41). Elsewhere he is described as six-faced (*ṣaḍvaktra*, XCVIII.1). It is curious to note that cock, which is another popular emblem of the god, is not noticed. It is, however, mentioned in a couplet of Kāśyapa extracted by the commentator which states, 'Skanda has peacock for his mount, holds a spear and a cock in his hands and has a handsome and child-like appearance (*Mayūravāhanaḥ Skandaḥ śakti-kukkuṭa-dhārakaḥ, Surūpadeho vikrānto devaḥ senāpatiḥ*[1] *śiśuḥ*[2]). It is interesting to note that peacock as an emblem of Skanda is mentioned in the Aphsad stone inscr. of Ādityasena[3] and Alina copper-plate inscr. of the Maitraka ruler Śīlāditya VII.[4] His oldest anthropomorphic representation is to be found on coins. On one of the silver[5] and some copper coins[6] of the Yaudheyas dating from the 2nd century A.D. he (called Brahmaṇyadeva there) is shown six-headed and holding a long spear in the right hand, the left one resting on his hip. On class 6 of their money belonging to the 3rd-4th centuries A.D., we find a new feature, his mount peacock[7]. On some coins of Huviṣka, Mahāsena is shown holding a standard surmounted by a bird which, according to Dr. J. N. Banerjea, may be peacock.[8] On the reverse of a type of Kumāragupta's money also we come across this god holding a spear in his left hand and seated on the peacock mount.[9] The same tale is told by the plastic art. In some early Kuṣāṇa sculptures in the Mathura Museum he appears

1. It may be suggested here that '*deva-senāpatiḥ*' would be a better reading in place of '*devaḥ senāpatiḥ*'.

2. *BS* (Dvivedi's ed.), Vol. II, 786.

3. *CII*, III, No. 42, p. 203, l.6; *Hara iva śikhivāhanaṁ tanayam*

4. *Ibid*, No. 39, p. 177, l.49, *śikhaṇḍi-ketana*; No. 79, p. 286, mentions Kārttikeya as god of war.

5. *BMCAI*, pp. cxlix, 270, Pl. XXXIX, 21.

6. *Ibid.*, pp. cl, 270-71, Pl XXXIX 20; XL 10, 11, 12.

7. *Ibid.*, p. cl, Pl. XL.1-7. For Kārttikeya on uninscribed copper coins from Ujjayinī see *ibid.*, Pls. XXXVIII.1-17, XXXVII. 19.21 (single-headed), XXXVII.18-22 (six-headed).

8. For a learned discussion of the numismatic material, vide *DHI*, pp. 141-46.

9. *CCGD*, Pl. XV, figs. 5-14; Altekar, *Coinage of the Gupta Empire*, Pl. XIII.11-14.

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two-armed, holding a spear in his left hand, the right one being shown in the *abhayamudrā* (Nos. 1022, 1577, 2019). His peacock mount makes its appearance in the Gupta art. A very fine sculpture illustrating the scene of his consecration by gods at the head of *devasenā* is also to be seen in the same museum (No. 466). A beautiful red sandstone relief now preserved in the Bharat Kala Bhavan, Varanasi, shows him holding a spear in his left hand and seated on a peacock whose outspread plumage forms his *prabhāmaṇḍala* (Fig. 9).[1]

The Saura god—REVANTA. Revanta, son of Sūrya by Saṁjñā, is a creation of Paurāṇic mythology. It is laid down that he should be shown riding on the horse-back and accompanied by attendants engaged in hunting and sport (*Revanto= śv-ārūḍho mṛgayā-krīḍ-ādi-parivāraḥ*,[2] LVII.56). The *Viṣṇudharmottara* states that Revanta should be represented in the manner of Sūrya riding on the horse-back (III.70.53). This god appears to have gained some popularity in the mediaeval period and is still worshipped in Bengal. An Akaltara inscr. of the time of the Kalacuri king Ratnadeva II informs us that his feudatory Vallabharāja built a temple of Revanta at Vikarṇapura, modern Kotgadh[3] The *Bṛhat-saṁhitā* description is fully corroborated by some late specimens preserved in Indian Museum, Calcutta and Rajashahi and Dacca Museums. A beautiful image of this god from Bihar shows Revanta on horse-back holding reins in his left hand; he is followed by two dogs, one running under the horse and the other chasing a deer, two antelopes in front of the horse; an archer ready to shoot the deer; two drummers, two cymbal-players, an umbrella-bearer, two pole-bearers, one water-carrier; another attendant carries some kind of game on his shoulders, probably a boar, while a number of armed attendants are marching in front of the cortege.[4]

1. For a Kārttikeya image from Kanauj see *IA, AR*, 1960-61, Pl. LXXIX.13.

2. Cf. Utpala's remarks:—

यः परिवार सः मृगयायुक्तः क्रीडायुक्तः आदि-
ग्रहणादश्ववाहने तत्परीक्षणं तदन्वेषणादि ।

3. Bhandarkar's *List of Inscriptions of Northern India*, No. 1584; *CII*, IV, No. 95, l. 26.

4. Bidya Binod, An illustrated Note on an Indian deity called Revanta,

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III. *Goddesses*

The goddesses played a comparatively insignificant role in ancient Hindu religion. Varāhamihira mentions many goddesses. We shall first refer to those about whom some details are given.

DIVINE MOTHERS. The Divine Mothers who are referred to by our author as *Mātṛgaṇa* (LVII.56) or *Mātaraḥ* (XLVII.68; and other plural forms of the word *mātṛ*, e.g. *Mātṛbhiḥ*, XLVII.26; *Mātṛṇām*, LIX.19) and described as universal mothers (*viśvasya mātaraḥ*, XLVII.68) are personified female energies of principal gods. According to Paurāṇic mythology, these Mātṛkās were created to assist Śiva in his fight against the demon Andhakāsura.[1] According to the *Mārkaṇḍeya-purāṇa*, the Śaktis of Brahmā, Śiva, Guha, Viṣṇu and Indra originated from their bodies to help Caṇḍikā in her combat with the Asuras.[2] The number of the Mātṛkās was originally seven but was afterwards increased to 8, 9, 12 or even 16. Varāhamihira is silent about their number, but his scholiast first mentions Brāhmī, Vaiṣṇavī, Raudrīs, Kaumārīs, Aindrīs, Yāmīs, Vāruṇīs and Kauverīs and next names Nārasiṁhī, Vārāhī and Vaināyakī[3]. In the opinion of the present writer this refers to the conditions in the 9th century

JASB, 1909, pp. 391-92, Pl. XXX. For some other Revanta figures vide N. B. Sanyal, A New Type of Revanta from Dinajpur District, *IHQ*, III, pp. 469-72 and plate facing page 469 (The author quotes original texts from the *Viṣṇu*, *Mārkaṇḍeya* and *Kālikāpurāṇa* throwing light on Revanta's iconography); N. K. Bhattasali, *Iconography of Buddhist and Brahmanical Sculptures in the Dacca Museum*, p. 177, Pl. LXII(a); *MASI*, No. 23, Pl. XLVI(a); *ASI*, *AR*, 1928-29, Pl. LIV(b).

1. T.A.G. Rao, *Elements of Hindu Iconography*, I, pp. 381-2. According to the *Suprabhedāgama*, however, the Mātṛs were created by Brahmā for killing Nairṛta: *Nairṛtasya vadh-ārthāya Brahmaṇā c-āpi nirmitāḥ* (quoted by D. N. Shukla in *Pratimalakṣaṇa*).

2. ब्रह्मेशगुहविष्णूनां तथेन्द्रस्य च शक्तयः ।
शरीरेभ्यो विनिष्क्रम्य तद्रूपैश्चण्डिकां ययुः ॥
यस्य देवस्य यद् रूपं यथाभूषणवाहनम् ।
तद्वदेव हि तच्छक्तिरसुरान् योद्धुमाययौ ॥

Mārkaṇḍeya-purāṇa, LXXXVII. 12-3.

3. एवमन्यासां नारसिंहिवाराहिवैनायकीनामूह्यम्

on LVII.56.

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A.D. when the commentator flourished and not during Varāhamihira's time. For the preamble of the early Cālukya inscriptions shows that the number of the Mātṛkās was fixed at seven in the 6th-7th century; the Cālukyas are represented as nurtured by the seven Mothers (*Sapta-mātṛbhir=vardhitānām*).[1] The evidence of sculpture is instructive on this question : In Kuṣāṇa art 'even two, three and more (Mothers) are shown in a group, which shows that their number was elastic.[2] The popularity of the Mātṛkā cult in the Kuṣāṇa and Gupta periods is amply testified to by the evidence of art[3] and inscriptions. It was closely associated with the Tāntrika form of Śaivism. A special mode of propitiating the Mothers had already developed and was called *maṇḍalakrama*.[4] While treating of the consecration of the images of various gods, Varāhamihira lays down that the Mātṛ images should be installed by persons well-versed in the special mode of their worship and according to Utpala this implies the manner prescribed in their own *Kalpa*.[5] It is interesting to note in this context that the Gangdhar stone inscr. of Viśvavarman (A.D. 423-25) speaks of building a 'very terrible abode.....filled with the female ghouls, of the divine Mothers, who utter loud and tremendous shouts in joy, (and) who stir up the very oceans with the

1. *IA*, VI, p. 74; VII, p. 162; XIII, p. 137f. They were also tutelary deities of the early Kadambas, vide *IA* VI, p. 27.

2. V. S. Agrawala, *Brahmanical Images in Mathura Art*, preface, p. XI, Nos. 880 (two) F, 34, 1362, 2025, 1024 (three Mothers). It shows that the Mother goddesses could be shown in early art in any number less than seven.

3. A number of Kuṣāṇa sculptural panels are described by V.S. Agrawala in his *Brahmanical Images in Mathura Art*, pp. 59 ff.

4. Utapala explains it simply as *Pūjā-krama*.. It must, however, refer to the magical circles (*maṇḍalas*) which form an essential aspect of Tantric ritualism. It is noteworthy in this connection that almost all the 6-4. Yogini temples (e. g. Bheraghat, Ranipur Jharial, Mitauli, Dudhai), which are closely connected with the mother goddess cult, are circular in plan. The *maṇḍala* ceremony played an important part in Śaiva ritual also when it came under the impact of Tantricism. cf. *Harṣacarita*, pp, 155, 164.

5. मातृणामपि मण्डलक्रमविदः । LIX.19. Utpala's remarks are worth quoting :

मातृणां ब्राह्म्यादीनाम् । मण्डलक्रमविदो ये मण्डलक्रमं पूजाक्रमं विदन्ति जानन्ति । तान् स्थापकान् विदुः.....मातृणां स्वकल्पविहितविधानेन...

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mighty wind rising from the magic rites of their religion.'[1] A Gupta inscription engraved on a rock-tablet in the Pathari hill (Bhilsa) records the execution of a panel of Sapta-Mātṛkās near which the inscription is engraved.[2]

As to their representation in art, Varāhamihira simply states that 'the Mothers should be shown with the emblems of the gods corresponding to their names (*Mātṛgaṇaḥ kartavyaḥ svanāma-dev—anurūpa-cihna-kṛtaḥ*, LVII.56). A similar statement about their sculptural representation is contained in the *Mārkaṇḍeya-purāṇa* which lays down that the Śaktis of individual gods are to be provided with the form, ornaments and vehicles of their representative gods.[3] Utpala quotes extracts from the previous verses of the chapter giving iconographic features of corresponding gods and then observes that 'they should be endowed with beautiful breasts, slender waist and heavy hips so that female beauty may be created'.[4] We have collective as well as separate representations of the Mothers. The earliest specimen of the Sapta-Mātṛkās is No. F 38 of the Mathura Museum (also No. 126) belonging to the early Kuṣāṇa period. This is the simplest specimen in which the goddesses are shown 'without any distinguishing vehicles, faces or attributes.' Later on even in the Kuṣāṇa period, various kinds of distinctions make their appearance. Relief No. 552 in the Mathura Museum, for instance, shows a row of seven Divine Mothers, each holding a child in left arm; the first is Brāhmī having three heads (it being impossible to show the fourth head) and holding a ladle in her right hand, her vehicle being swan; Māheśvarī is shown standing with a *triśūla*, against her mount, a bull; Kaumārī holds a *śakti* and has peacock

1. मातृ (तृ)णां च प्रमुदितघनात्यर्थनिर्ह्रादिनीनाम्,
तन्त्रोद्भूतप्रबलपवनोद्धतिताम्भोनिधीनाम् ।
·····गतमिदं डाकिनीसम्प्रकीर्णम्,
वेश्मात्युग्रं नृपतिसचिवोऽकारयत् पुण्यहेतोः ॥

CII, III, No. 17 pp. 76, 78.

2. *Annual Report of the Archaeology Department*, Gwaliar State, 1925-26, pp. 12, 25, App. D, No. 15.

3. See *supra*, p. 154, fn. 2.

4. किन्तु तासां स्तनशोभा मध्यक्षामता नितम्बवैपुल्यं कार्यं येन प्रकारेण स्त्रीरूपस्य शोभा जायत इति ।

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for her vehicle; Vaiṣṇavī is shown with a mace and a kneeling *garuḍa* as her mount; Vārāhī is represented with a broken staff and standing against her mount, a *mahiṣa*; Indrāṇī held an object, now broken, which was probably a *vajra*, and has an elephant for her vehicle; and, lastly, Cāmuṇḍā with her *preta-vāhana*, garland of skulls (*muṇḍa-mālā*), emaciated body and sunken belly. On proper right of the row is Vīrabhadra and on the left Gaṇapati[1], both of whom replaced the *āyudha-puruṣas* whom we meet in earlier specimens.[2] A number of Sapta-Mātṛkā panels as well as images of individual mother goddesses of later date are known[3] which it is neither possible nor necessary to describe here.

EKĀNAMŚĀ. Another goddess about whom we get some details is Ekānaṁśā. Her origin is given in the *Harivaṁśa* (Chs. 58-60) which states how at the request of gods Viṣṇu decided to be born as Kṛṣṇa in the womb of Devakī, Vasudeva's wife, ordered the goddess Nidrā to be born as the daughter of Nanda Gopa and Yaśodā and told her that when struck against a rock by Kaṁsa (for killing her), she will escape to the sky assuming four arms and holding a trident, sword, wine cup and lotus. She is named Ekānaṁśā and said to have been born from Prajāpati's particles.[4] It would thus appear that she was closely associated with Vāsudeva-Kṛṣṇa. That she enjoyed considerable popularity in the 6th century A.D. is proved by the fact that in a small chapter of fifty-seven verses dealing with iconometry and iconography she claims as many as three verses while much less space is allotted to such important gods as Indra, Brahmā, Skanda, etc. Another peculiar feature about Ekānaṁśā that appears first in our work is her association with Baladeva. She is called Vaiṣṇavī Śakti

1. It is curious to note that the Bihar stone pillar inscr. of the time of Skandagupta associates Skanda with the Divine Mothers : *Skanda-pradhānair=bhuvi mātṛbhiś=ca*, *CII*, III, No. 12, p. 49, l. 9.

2. Mathura Museum Nos. F. 38, F. 39, G. 57, 126, 1179, etc.

3. For a beautiful but late Sapta-Mātṛkā panel from Haveri (Dharwad) beginning with Vīrabhadra and ending with Gaṇeśa, see G. H. Khare, *op. cit.*, fig. 76. For some separate reliefs from Puri and other places in Orissa vide *DHI*, Pls. XLII-XLIV.

4. For relevant text of the *Harivaṁśa* vide *JRASB* (Third Series), 1936, pp. 41-2, not.

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in the *Mārkaṇḍeya-purāṇa* (XCI.4)[1] As many as three varieties of her image, viz. two-, four-, and eight-armed, are described by Varāhamihira. He states[2] : 'Ekānaṁśā should be placed between Baladeva and Kṛṣṇa; (if she is intended to be shown two-armed) her left hand should rest on her hip, the right one carrying a lotus. If she is to be represented four-armed, she should hold in her left hands a book and a lotus, one of her right hands being in boon-giving (*vara*)[3] pose and the other holding a rosary. When she is to be represented with eight arms, her left hands should carry a *kamaṇḍalu*, a bow, a lotus, and a book, while her right hands should hold an arrow, mirror and a rosary, the remaining one being shown in the *varada-mudrā*.' The *Viṣṇudharmottara* (III.85.71-2)[4] describes two-armed Ekānaṁśā in almost identical words. Curiously enough no image exactly agreeing with our description is known. Slab No. G 58 of the Provincial Museum, Lucknow, is of some interest in the present context (Fig. 10). It depicts a two-armed female figure flanked on each side by a male figure with four arms which give us the impression of his divinity. The female figure holds a lotus stalk in her left hand while 'the open palm of the right bears a lotus mark and is let down in boon-giving posture.' The central position of the female figure leaves no doubt about her divinity and the importance attached to her. Rai Bahadur Prayag Dayal, the then Curator of the Museum, 'tentatively' identified the two male figures as Rāma and Lakṣmaṇa, and

1. In the *Viṣṇu* and *Brahma* Purāṇas she is called Yoganidrā, Mahāmāyā and Vaiṣṇavī.

2. एकानंशा कार्या देवी बलदेवकृष्णयोर्मध्ये ।
कटिसंस्थितवामकरा सरोजमितरेण चोद्वहती ॥
कार्या चतुर्भुजा या वामकराभ्यां सपुस्तकं कमलम् ।
द्वाभ्यां दक्षिणपार्श्वे वरमक्षसूत्रं च ॥
वामेऽष्टभुजायाः कमण्डलुश्चापमम्बुजं शास्त्रम् ।
वरशरदर्पणयुक्ताः सव्यभुजाः साक्षसूत्राश्च ॥
LVII.37-39.

3. Utpala defines *varada* as the pose in which the palm is shown inside-out with fingers pointing downwards— उत्तानोऽधोऽङ्गुलिर्हस्तो वरदः (on LVIII.38).

4. एकानंशापि कर्तव्या देवी पद्मकरा तथा ।
कटिस्थवामहस्ता सा मध्यस्था रामकृष्णयोः ॥

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the central female figure as Sītā.[1] J. C. Ghosh proposed to identify this composition as Baladeva, Ekānaṁśā and Vāsudeva-Kṛṣṇa.[2] According to D.P. Pandey, on the other hand, the images represented in the slab are Balarāma, Rukmiṇī and Vāsudeva-Kṛṣṇa.[3] Drs. R. C. Majumdar and J. N. Banerjea invite our attention to a similar composition in bronze from Imadpur in Bihar : the two-armed goddess standing on a lotus-seat with her right hand in the boon-granting posture and the left holding a mirror is flanked by four-armed Balarāma and Kṛṣṇa on her proper right and left respectively.[4] The female figure in these compositions, it would appear, does not correspond to the description of the two-armed Ekānaṁśā set forth above.

Śacī (also called Māhendrī and Indrāṇī), the consort of Indra, was regarded as an ideal of wifehood and was worshipped by girls before marriage (*VP*, 9-14). This custom is even now in vogue in certain parts of India. On some occasions she was to be worshipped along with her male counterpart (XLV.80).

The legend that Pārvatī, consort of Śiva, was the daughter of the mountain Himavat had developed and she is accordingly called Adrisutā (IV.30) and Śailasutā (VIII.24).[5] As we have seen above, besides being represented independently, she was also shown in an androgynous form with Śiva.

The wives of some of the Vṛṣṇi heroes also appear to have been apotheosised and worshipped. Varāhamihira tells us that the wives of Pradyumna and Śāmba should be shown holding a shield and a sword (*Anayoḥ striyau ca kārye kheṭaka-nistriṁśa-dhārinyau*, LVII.40).

Mention is also made of the figures of the sons, daughters,

1. *JUPHS*, 1935, Part II.
2. *JRASB* (Third Series), II (1936), pp. 41-6.
3. *JBORS*, XXVII (1941), pp. 50-60.
4. *JRASB*, Letters, XVI, No. 2, 1950, pp. 247-51, Pl. XII.

It has been suggested by some that under the name Subhadrā, Ekānaṁśā along with Baladeva and Kṛṣṇa is the principal object of worship in the Ananta-Vāsudeva temple at Bhuvaneshwar and in Jagannāth temple at Puri, vide *JRASB*, 1936, pp. 43 ff.

5. Cf. *CII*, III, No. 33, p. 146, l. 1, where she is called *Kṣitidhara-tanayā*.

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wives, attendants[1] and mothers[2] of gods, Sarasvatī[3], abstract goddesses like Kīrti, Lakṣmī, Dhṛti, Śrī, Svāhā, Siddhi, the wives of Kāśyapa such as Danu, Surasā, Vinatā and Kadru, Aditi, the mother of gods called Ādityas, and Diti, the mother of Daityas (XLVII.56-58).

IV. *Gaṇa-devatās or Groups of Divinities*

Varāhamihira refers to certain groups of divinities who are classed as *gaṇa-devatās* in the *Amarakoṣa*.[4] The Ādityas are mentioned in connection with Indra's consecration (XLVII. 56). Their number is variously given as seven or eight in the *Ṛgveda* (9.114.3 ; 10.72.8) and as twelve in the *Śatapatha-brāhmaṇa* (VI.1.2.8; XI.6.3.8). In the post-Vedic period they were regarded as the twelve sun-gods connected with twelve months of a year.[5] Viśvedevāḥ, All-Gods, who preside over the eighth quinquennial *yuga* of the Jovian cycle, the constellation of Uttarāṣāḍhā, and the Paurṇamāsī and are said to have given an ornament to Indra's flagstaff,[6] are ten in number according to popular notions.[7] The Vasus are repre-

1. XLV.13, Cf. XLVII.26, 58 for references to consorts of gods.

2. XLVII.58.

3. XLVII.56; XXVI.2 (where balance is called Sarasvatī); *TY*, I.2 (where she is invoked along with Viṣṇu, Brahmā, etc,).

4. आदित्य-विश्व-वसवस्तुषिता भास्वरानिलाः ।
महाराजिक-साध्याश्च रुद्राश्च गणदेवताः ।।
Amarakoṣa, I. 1.10.

5. Macdonell, *Vedic Mythology*, pp. 43-4.

6. VIII.23, 41; XCVII.5; XCVIII.1; XLII.47. The *mantras* addressed to them are referred to in XLIII.6.

7. Cf. the following verses cited from an unnamed source by Bhānuji Dīkṣita in his commentary on *Amara* I.1.10 :

आदित्या द्वादश प्रोक्ता विश्वेदेवा दश स्मृताः ।
वसवश्चाष्टसंख्याताः षट्त्रिंशत्तुषिता मताः ।
आभास्वराश्चतुःषष्टिर्वाताः पञ्चाशदूनकाः ।
महाराजिकनामानो द्वे शते विंशतिस्तथा ।।
साध्या द्वादश विख्याता रुद्राश्चैकादश स्मृताः ।।

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sented as led by Indra in the *Ṛgveda* and by Agni in the Brāhmaṇas. Their number is variously stated to be 8 or 333,[1] the former being generally accepted. In our work the word *vasu* is used to denote the numeral 8 (XCVII.1, 2). Though the Rudras (XLVII.56) are said to number thirty-three in the *Taittirīya-saṁhitā*, their popular number is eleven according to to the Brāhmaṇas.[2] Our author employs the word *Rudra* in the sense of the numeral 11 (VIII.20; XCVII.1). Two of these Rudras are named by Varāhamihira : Ajapāda (Ajaikapāda) and Ahirbudhnya, lords of Pūrva— and Uttara—Bhadrapadā respectively.[3] The latter was also believed to preside over the sixth *yuga* of the Jovian cycle (VIII.23). The figures of the Rudras were to be drawn and worshipped as a preliminary to *Puṣya-snāna* (XLVII.26), but no details about their iconography are given. The Maruts referred to under the name Marudgaṇa (XLII.52; XLVII.55) are evidently the same as the deity-group called *Anilāḥ* in the *Amarakoṣa*. In the Vedic pantheon Maruts were deities of lightning, and specially associated with Indra in the Vṛttra episode, their number being thrice sixty or thrice seven.[4] According to a verse quoted by Bhānuji Dīkṣita in his gloss on the *Amarakoṣa* (I.1.10) they number forty-nine. The Sādhyas are mentioned in connection with *Puṣya-snāna* (XLVII.55), their number according to the popular notion being twelve.

LOKAPĀLAS. By far the most important group of the Paurāṇic pantheon was that formed by the guardians of quarters and intermediary directions variously called Lokapāla (XLV.10; XLVII.26; XLII.57), Digīśa (*BY*, XX.1; *TY*, IX.2), Digīśvara (*BY*, XVI.1) or Diṅnātha (*YY*, VI.19).[5] The concept of the guardians of the quarters is of high antiquity and goes back to the *Atharvaveda* and the *Taittirīya-saṁhitā* (V.5-10). According to Varāhamihira, Indra, Agni, Yama, Nirṛti, Varuṇa, Vāyu, Indu (Soma) and Śaṅkara are the lords of the east, south-east, south, south-west, west, north-

1. Macdonell, *op. cit.*, p. 130.
2. *Ibid.*, p. 130.
3. XCVII.5. It may be pointed out here that in the Āgamas the name Ajaikapāda is split up into Aja and Ekapāda who are regarded as two distinct Rudras. Vide D.N. Sukla, *Pratimā-lakṣaṇa*, pp. 184 ff.
4. Macdonell, *op. cit.*, pp. 77,81.
5. Cf. *diśāṁ palayaḥ*, LIII.3.

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west, north and north-east respectively.[1] This list is at divergence with the stereotyped one of the Purāṇas in which Kubera, not Soma, is the governor of the northern quarter. At the same time, it is curious to find our author referring to the northern region by the name *Kauberī*, meaning the direction governed by Kubera, (XIII.1; XLVII.18; LXXXVI. 25). What is still more interesting is that in his *Yogayātrā* (VI.1) he substitutes Yakṣa for Indu (Soma) as the ruler of the north. There can be no doubt whatsoever that Yakṣa here stands for Kubera, the Yakṣa king. It indicates that the list of the protectors of the quarters was not yet completely stereotyped.[2] We have noticed above details about all these deities except Soma about whom something more will be said in connection with the Navagrahas. It will appear that some of the prominent Vedic gods were reduced to the insignificant position of the Dikpālas and none of them except Śaṅkara (Śiva) was now a cult god.

The honour of protecting the quarters was also shared by eight planets, Ketu being excluded from the list. Thus the Sun, Venus, Mars, Rāhu, Saturn, Moon, Mercury and Jupiter are associated with Indra, Agni, Yama, Nirṛti, Varuṇa, Vāyu, Yakṣa (Kubera) and Śiva respectively in their lordship of the various quarters[3], as stated above. Varāhamihira in his *Bṛhadyātrā* enjoins upon a king undertaking a military expedi-

1 पुरुहूतानलयमनिर्ऋतिवरुणपवनेन्दुशङ्करा देवाः ।
विज्ञातव्याः क्रमशः प्राच्याद्यानां दिशां पतयः ॥ LIII.3.

सुरपतिहुतवहयमनिर्ऋतिवरुणपवनेन्दुशङ्कराः क्रमशः । प्राच्याद्यानां पतयः LXXXV. 75.

The *Mahābhārata* (Karṇa-parva, XLV.32) also names Soma as the lord of the northern quarter.

2. In early works, it should be remembered, there is a great deal of difference in the enumeration of the guardians of different quarters. Cf. *Manu* V.96; *Mahābhārata* VIII.45.31 f. For an elaborate discussion on this Question see *DHI*, pp. 519-522.

3. पुरुहूतहुताशयमा निर्ऋतिवरुणानिलयक्षशिवाश्च दिशाम् ।
पुनरर्कसितारतमो रविजाः शशिसौम्यबृहस्पतयः पतयः ॥ *YY*, VI.1

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tion to meditate upon the regent of the quarter concerned.[1] We learn from the *Yogayātrā* (VI.1-18) that kings while proceeding on an expedition carried the image of the particular Lokapāla and of the planet in front, e.g., images of Indra and the Sun while marching eastward. Quintus Curtius (VIII. 14.11) tells us that while marching against Alexander, the forces of Porus carried the image of Hercules aloft. E. R. Bevan thinks the image may have been either of Kṛṣṇa or of Indra.[2] But in the light of the evidence set forth above for the first time, it may be suggested that the image in question must have been that of a Dikpāla.[3]

V. *Demi-gods* (*Devayonis*)

Indians, from very ancient times, believed in the existence of semi-divine spirits or *devayonis*. Of them, Vidyādharas, Apsarasas, Yakṣas, Rakṣas, Gandharvas, Kinnaras, Piśācas, Guhyakas, Siddhas and Bhūtas are mentioned by our author. The *Amarakoṣa*, it is interesting to note, classes them all as *devayonis* (I.1.11). Vidyādharas (XIII.8) and their consorts are described as living on the peaks of the Vindhya mountain (XII.6). The wars of the Vidyādharas (IX.38) and their destruction therein (IX.27) are referred to. Apsarases were the divine damsels (*divyastrī*, XLV.89), who were to be worshipped as a preliminary to the ceremony of *Puṣya-snāna* (XLVII.25, 58). Their sight in autumn was considered to be auspicious (XLV.89). Yakṣas (XIII.8) are also called Yātudhānas whose sight was believed to cause pestilence to avert which an expiatory rite is prescribed (XLV.79). On the contrary, their appearance in Hemanta was regarded as

1. व्रजेद् दिगीशं हृदये निवेश्य यथेन्द्रमैन्द्र्यामपरांश्च तद्वत् ।
BY, XX.1.

Cf. पुरुहूतदिशं नृपोभियुञ्ज्यात् पुरुहूतं हृदये निवेश्य सम्यक् ॥ *YY*. VI 3

The king was also to worship the image of the protector of the direction concerned before undertaking a military campaign, cf. *BY*, XVI.1, which is identical with *Viśvakarma-prakāśa*, II.5; *YY*, VI.19.

2. *Cambridge History of India*, p. 326.

3. For a detailed discussion of this question see my article 'Heracles in front of the Infantry of Porus' in *JIH*, XLII, pp. 119-126.

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auspicious (XLV.91). It was considered auspicious to have the sight of the Rakṣas (XIII.11) in Hemanta (XLV.91). Gandharvas (XIII.8; XIV.31) were the celestial musicians and the derivative *Gāndharva* stands for music as well as musicians. They were assigned an outer quarter in the body of the Vāstu-puruṣa (LII.44). Utpala describes the Gandharvas as horse-faced (*aśvamukhā naradevayonayaḥ*, on XIII.8). Kinnaras, also called Kimpuruṣas (XLVII.62), were supposed to have horse-like faces and consequently known as *Aśvamukhas* (XVI.34). Piśācas (XIII.11) are sometimes associated with demons (XLVII.30; *BṚ*, XV.10) and in classical Sanskrit literature, the word is loosely used to denote both a class of demigods and demons or goblins. Varāhamihira associates the gatherings of Piśācas (*Piśāca-saṅgha*) with night (XXXVIII.4) and refers to places meant for worshipping them (*Piśācālaya*, XI.3).[1] Siddhas are mentioned in connection with Puṣya-snāna (XLVII.55). The Guhyakas, Yakṣas, Rakṣas, Piśācas and Bhūtas were propitiated for victory in war (*BṚ*, XV. 1,10-11). It is stated that when not propitiated they spell ruin to the king, his conveyances or army, and when properly propitiated they lead to success and cause trouble to the enemy.[2] The sight of the Bhūtas in autumn is said to be favourable (XLV.89). Mention must also be made in this connection of the manes (*pitṛs*, *ṚṚ*, IV.47) who were believed to preside over the seventh *yuga* of the Jovian cycle (VIII.23), the constellation of Maghā (XCVII.4) and Amāvāsyā (XCVIII.2). Pitṛs are represented as inhabiting the heavenly abode of Brahmā (LXXIII.19).[3] According to Utpala, *Pitṛvana* (XLII.13) denotes a cremation ground which, it appears, was supposed to be haunted by them. Varāhamihira enjoins drawing and worshipping the figures of Yakṣas, Pitṛs, Gandharvas, Apsarasas and Siddhas as a preliminary to *Puṣya-snāna*

1. Utpala explains *Piśācālaya* as *Yakṣasthāna*, confusing Piśācas with Yakṣas.

2. अनर्चितास्ते नृपतिं सवाहनं विनाशयन्ति क्षपयन्ति वा चमूः।
सुपूजिताः सिद्धिकरा भवन्ति ते प्रबाधकाः शत्रुगणस्य चाहवे ॥

BṚ, XV.14.

3. The manes, Piśācas, Rākṣasas and Bhūtas were believed to be lurking trees and they were to be worshipped with offerings before cutting down a tree (Vide XLII.17; LVIII.9-11).

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(XLVII.25), but no information is given as to the mode of their representation. The images of Pitṛs, informs Utpala, were at some places fashioned from clay (*Pitaraḥ prasiddhā bhūtajanāḥ lepamayāḥ kutracit kriyante*). The Yakṣa cult appears to have been very popular in a few centuries preceding and following Christ. Sometimes they were treated as attendants of some major gods and sometimes they formed by themselves an object of worship. Some of the earliest beautifully finished sculptures in the round are those of Yakṣas, and reference may be made in this connection to the Parkham Yakṣa and Didarganj Yakṣiṇī of the Maurya period.[1] Vārāṇasī and Kurukṣetra were great centres of Yakṣa cult in ancient times.[2].

The hosts of Śiva called Pramathas or Gaṇas have been referred to above. There appears to have existed belief in the hosts of other gods and in those of demigods and goblins also. Thus, Varāhamihira in his *Yogayātra* (VI.20) and *Bṛhadyātrā* (XV.10-11) refers to the *gaṇas* of Indra, Viṣṇu, Agni, Yama, goblins (Niśācaras or Daityas or Asuras), Varuṇa, Mātariśvan, Kubera, Ahi, Suparṇa, Skanda, Piśācas, Yakṣas and Rakṣas whose favour was to be sought for securing victory in war. They are described as bearded, terrific, pot-bellied, hunch-backed and dwarf and as putting on topped crown (*kirīṭa*) and variegated garlands, ornaments and garments.[3]

VI. *Demonology*

While the gods were considered to be of benign nature and claimed spontaneous reverence of the masses, the demons[4] inspired terror and received what may be called forced homage. The war between the gods and demons is alluded to (XLII.1-2).

1. Coomaraswamy, *History of Indian and Indonesian Art* (Dover ed. 1965), Figs. 9, 17

2 *Matsya-purāṇa*, Ch. 180; V. S. Agrawala, *Matsya-Purāṇa—A Study*, pp. 279-81; *Vāmana-Purāṇa : A Study*, pp. 13, 46, 66-67, etc.

3. चमूसमेता अनुयान्तु पृष्ठतो विचित्रमाल्याभरणाः मदोत्कटाः ।
विचित्रवस्त्रा जटिलाः किरीटिनः करालम्बोदरकुब्जवामनाः ॥
BY. XV. 12

4. Daitya XIII.11; XLII.2; LXXIX.3; Diti-tanaya, XLVII.30; Dānava, XLVII.30; XIII.11; Asura, XLII.1, 5.

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The demon Bali, son of Virocana, was an object of worship, probably because he was a devout devotee of Viṣṇu. Varāhamihira lays down that his image should measure 120 *aṅgulas* in height (*Baliś=ca Vairocaniḥ śataṁ viṁśam*, LVII.30). Along with gods and demigods, demons were also worshipped at the commencement of some religious rites (XLVII.30), lest they might present obstructions in their completion. The gems were believed to derive their origin from the bones of Daitya Bala when he was killed by Indra (LXXIX.3). The name of the demon Vṛttra is implied in Indra's appellation Vṛttrahan noticed above. Vātāpi is represented as hostile to gods and as the tearer of the abdomens of sages (*Suraripu, Muni-kukṣi-bhid*).[1] The demonesses Carakī, Vidārikā, Pūtanā and Rākṣasī were supposed to inhabit the four outer corners of a house and as such received offerings at various stages in building a house (LII.81). Rāhu, the supposed obscurer of the sun and the moon, was regarded as an Asura (V.1, 14).

VII. *Navagrahas, Nakṣatras and Divisions of Time*

The nine planets (*navagrahas*) formed a non-sectarian object of worship. The movements of planets were believed to have immense effect on the course of worldly events in general and human life in particular. It was, therefore, quite natural to propitiate them and solicit their favour. Varāhamihira states that "when planets are pleased with a man, he will have no trouble even if he falls down from a great height or enters the midst of sporting snakes."[2] *Grahaśānti* (XLII.37) or *Grahayajña* (XLIII. 14; XLVII. 29; *BY*, XV.1; XVIII.1) was performed before launching on a military campaign.[3] As we have seen above, the images of planets along with those of the Lokapālas were carried in front of an army while on march. The planets were worshipped on some other occasions also. Along with the constellations they were drawn in a circle on the ground

1. Vide the *SS* couplet cited by the commentator on XII.13.

2. प्रीतैः पीडा न स्यादुच्चाद्यदि पतति विशति यदि वा भुजंगविजृम्भितम् । CIII.47.

3. For different sculptural materials, sacrificial fuel-sticks, flowers, priests and their fees, food, etc. in connection with Grahayajña see CIII.47; *BY*, Ch. XVIII.

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and propitiated on the occasion of the ceremonial ablution called *Puṣya-snāna* (XLVII.26, 29). In order to make predictions about rainfall and crops an astrologer went to a place north or east of a city or village and drew on ground planets and constellations and worshipped them (XXIV.6). The figures of Jupiter, Venus and Saturn are alluded to at another place also (XLV.11), but no information about their iconography is given. Like the Dikpālas, Navagraha panels were also employed as architectural pieces in mediaeval temples.[1] The moon was believed to preside over an eclipse (V. 19-20), the 9th quinquennial *yuga* of Jupiter's cycle (VIII.23), 3rd year of a *yuga* (VIII.24), the constellation of Mṛgaśiras (XCVII.4) and the fifth lunar day (XCVIII.1). Mercury and Saturn were believed to be sons of the moon and sun and were consequently called *Saumya* or *Cāndri* (*BY*, XVIII.11-13) or *Candrātmaja* (*YY*, VI.17) and *Sauri* (CIII.47; *YY*, VI.13) respectively. Bṛhaspati is said to preside over the 2nd *yuga* of the Jovian cycle (VIII. 23, 26) and the constellation of Tiṣya (XCVII.4). The identification of Jupiter and Venus with Bṛhaspati, the preceptor of gods and chancellor of Indra, and Śukra, the preceptor of demons, was a *fait accompli*.[2]

The *nakṣatras* were similarly carved and worshipped (XXIV.6; XLVII.26). All the asterisms were collectively represented in an anthropomorphic form called Nakṣatra-puruṣa or Dhiṣṇya (CIV.1-5, 6) in the following manner : Mūla represents the feet of Nakṣatra-puruṣa, Rohiṇī, the shanks; Aśvinī, the knees; Pūrva- and Uttarāṣāḍhā, the thighs; Pūrva- and Uttara-phalgunīs, the secret parts; Kṛttikā, the hips; Pūrva- and Uttara-bhadrapadā, the sides; Revatī, the abdomen; Anurādhā, the breast; Dhaniṣṭhā, the back; Viśākhā, the arms; Hasta, the hands; Punarvasu, the fingers; Āśleṣā, the nails; Jyeṣṭhā, the neck; Śravaṇā, the ears; Puṣya, the mouth; Svāti, the teeth; Śatabhiṣaj, laughter; Maghā, the nose; Mṛgaśiras, the eyes; Citrā, the forehead; Bharaṇī, the head; and Ārdrā, the hair (CIV.1-5). In the *Rūpaṣaṭtra-*

1. For late Gupta and mediaeval Graha reliefs cf. *DHI*, Pl. XXXI, figs. 1-2; for textual evidence on their iconography, see Khare, *op. cit.*, pp. 140-43.

2. Cf. VIII.1 where Jupiter is described as *devapati-mantrin*; *YY*, VI.7 where Venus is styled *ditisuta-guru*.

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vrata people worshipped this stellar deity with the desire of securing a handsome physique in the next life (CIV.5, 6, 8). The *muhūrtas*, the fortnight, morning and evening *sandhyās*, the year, and other divisions of time were also viewed with reverence and are said to have participated in consecrating Indra (XLVII. 59-60).

Mention must be made in this connection of Sinīvālī and Kuhū. Sinīvālī is a Ṛgvedic goddess, Kuhū being of later Vedic origin.[1] In later Vedic literature they are connected with the first day of the new moon and the new moon itself respectively. They are also named by Varāhamihira (XLVII. 57). By the ninth century they appear to have undergone transformation with regard to their physical basis. According to Utpala, Sinīvālī is the Amāvāsyā when the moon is visible whereas Kuhū is a moonless Amāvāsyā (*Sinīvālī dṛśya-candrā amāvāsyā yasyāṁ prabhāte śaśī dṛśyate, naṣṭa-kṣapā- karā amāvāsyā Kuhūḥ yasyāṁ prabhāte candramā na dṛśyate*).[2]

VIII. *Sages*

The seers along with their consorts and pupils had also come to be objects of popular veneration, probably in recognition of the valuable services they rendered by preserving the sacred lore. Varāhamihira names the following: Marīci, Atri, Pulaha, Pulastya, Kṛatu, Aṅgiras, Bhṛgu, Sanatkumāra, Sanaka, Sanandana, Sanātana, Dakṣa, Jaigīṣavya, Bhagandara, Ekata, Dvita, Trita, Jābāli, Kaśyapa, Durvāsas, Kaṇva, Kātyāyana, Mārkaṇḍeya, Dīrghatapas, Śunaḥśepha, Vidūratha, Ūrva, Samvartaka, Cyavana, Parāśara, Dvaipāyana and Yavakrīta (XLVII. 63-67). The first six with the addition of Vasiṣṭha make up the traditional Seven Sages (*Saptarṣayaḥ*, XIII.5-6) XLVII.63; who were considered identical with the Ursa Major. The tradition of their being seven in number goes back to the *Ṛgveda* (IV.42.8). In the *Śatapatha Brhāmaṇa* (XIV.5.2.5, 6; II.1.2.4) they are said to be seven and made stars forming the constellation of the Great Bear. Vasiṣṭha's wife Arundhatī, who was supposed to be situated in the centre of the seven stars, is also named (XIII.6). Dvita and Trita

1. Macdonell, *Vedic Mythology*, p. 125.
2. Cf. *Naiṣadhīya-carita* I. 100, where Kuhū is styled *candra-vairiṇī*.

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are named in the *Rgveda*, the latter being probably the god of lightning.[1] Along with Ekata, they are mentioned in the *Śatapatha* (I.2.5. 1,2) and *Taittirīya Brāhmaṇa* (I.8.10.2) and described as sons of Agni and as born from the waters. Sāyaṇa on *Rgveda* I.108 speaks of them as three brothers and *ṛsis*. The legends that Agastya, the son of Varuṇa (XII.13), drank the entire water of the ocean, and stemmed the Vindhya mountain which was bent upon obstructing the sun's path are recorded (XII.1-5, 6). These exploits are also referred to in a couplet from the *Samāsa-saṁhitā* quoted by Utpala which further records the legend of his devouring the demon Vātāpi.[2] He was regarded as identical with Canopus and was worshipped at the latter's appearance after the rainy season (XII.11, 13, 15-8). Varāhamihira refers to the drawing and worship of the figures of *munis* in general (XLVII.25; XLV.10) and of Vedavyāsa in particular (XLV.12), but no information whatsoever is furnished about the mode of their representation.

IX. *Other Objects of Worship*

Animals, birds and trees were also supposed to possess some superhuman power and their favour was not infrequently solicited. The Nāga cult has been current in India from time immemorial. We have references to drawing and worshiping their figures (XLV.14; XLVII.25, 31, 62). The Nāga cult appears to have been very popular in India in a few centuries prior and posterior to the Christian era, and its remnants can still be perceived in popular beliefs. Numerous beautiful Nāga images have been found round about Mathura and are exhibited in the Mathura Museum.[3] The snake is said to

1. Cf. Macdonell, *op. cit.*, p. 69.

2. भानोर्वर्त्मविधातवृद्धशिखरो विन्ध्याचलः स्तम्भितो
वातापिर्मुनिकुक्षिभित् सुररिपुर्जीर्णश्च येनासुरः ।
पीतश्चाम्बुनिधिस्तपोऽम्बुनिधिना याम्या च दिग्भूषिता
तस्यागस्त्यमुनेः पयश्च्युतिकृतश्चारः समासादयम् ॥
(cited on XII.13).

3. e.g., Chhargaon Nāga of Huviṣka's time, Vogal, *Catalogue of Archaeological Museum at Mathura*, No. C13, p. 88, Pl. XIX.

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preside over Āśleṣā (XCVII.4), *navamī* (XCVIII.1) and the *karaṇa* called Nāga (XCIX.2). The pearls supposed to be derived from the serpents belonging to the family of Takṣaka and Vāsuki were believed to possess supernatural power of causing rain (LXXX.25-6). Certain kinds of rocks were believed to be haunted by Nāgas and their presence in a country was supposed to avert drought (LIII.111). As will be shown in a subsequent chapter, good or bad outcomes of a journey or march were inferred from the movements of birds and animals. They were also supposed to possess the power of predicting future and were prayed to declare the same (e.g. LXXXVII. 40-44). A wagtail when seen first after the rainy season was propitiated (XLIV.14). Cows were almost deified (XLVII. 68). Prior to felling a tree for fashioning certain articles, it was worshipped and *bali* offered to birds living in the tree-nests (e.g. XLII.16-18 ; LII.119; LVIII.4). Though the earth was deified and celebrated jointly with Dyaus or independently in the Vedas (*Ṛgveda*, V.84; *Atharvaveda*, 12.1), her personification was but slight. It is considerably advanced in the Paurāṇic mythology. Varāhamihira, evidently in pursuance of the legends current in his days, endows her with such human attributes as the power of speech, shyness, fatigue, fear and anger and speaks of her lips, eyes and mouth (XXXII.3-7). The earth goddess was believed to preside over the *karaṇa* called Gara (XCIX.1). Rivers, seas, mountains etc. were also regarded as sacred and are said to have participated in consecrating Indra (XLVII.61-2, 67). Waters (*toya*) are described as warding off all evil portents (XLVII.70) and were believed to preside over Pūrvāṣāḍhā (XCVII.5).

B. CEREMONIAL AND PRACTICES

I. *Sacrifices*

Vedic sacrifices continued to be performed with great zeal. We have numerous references to persons engaged in performing sacrifices.[1] 'The drinkers of *soma*' (*somapāḥ*, V.70; *somapīthayaḥ*, XV.3) is a phrase most probably employed to

1. हुताशसक्त V.33; यज्ञभृतः XIII.11; हुताशतत्पर XXIV.6; यज्वा LXVII.47; यज्ञप्रसक्तधीः LXVIII.38.

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denote the observers of the Śrauta sacrifices. The terms *hula*[1], *yajña*[2], *kratu*[3], *adhvara*[4], *yāga*[5] and *homa*[6] are indiscriminately used to denote sacrifices in general. Persons consecrated for performing sacrifices (*kratu-dīkṣita*, XVII.15) and Brāhmaṇas enjoying the merits accruing from the celebration of numerous sacrifices (V.98) are referred to. Gods were believed to partake of sacrificial offerings, while demons are represented as obstructors of sacrifices. Sacrifices were to be performed and Vedic hymns recited only during the day and not at night.[7] The performance of a sacrifice at the time of an eclipse was considered to be especially meritorious (V.14).

SACRIFICES NAMED. Of the five great sacrifices (*pañca-mahāyajñas*) which a house-holder was required to perform every day, only two are named, viz., *Vaiśvadeva* (*vaiśvadevī-krityādya dharma*, CIII.44) and *Brahmayajña* (*YY*, VI.17). Of the Śrauta sacrifices, mention is made of *Agnihotra* (IX.43; XVI. 14) and *Aśvamedha*. The loftiest ambition of a king in those days was to perform *Aśvamedha* after reducing his enemies.[8] The Gupta emperors Samudragupta[9] and Kumāragupta[10] and the Vākāṭaka ruler

1. V.14.
2. V.28; XIII.11; VIII.9; XV.6; XVI.8; XIX.13; LXVIII.38.
3. V.98; XVII.15; XIX.6.
4. XIX.13.
5. XLV.45.
6. XLV.64, 71.
7. ध्वनिरुच्चरितोऽध्वरे द्युगामी विपुलो यज्ञमुषां मनांसि भिन्दन् ।
विचरत्यनिशं द्विजोत्तमानां हृदयानन्दकरोऽध्वरांशभाजाम् ॥ XIX.13.
8. यक्ष्येऽश्वमेधेन विजित्य धात्रीमित्येवमभ्युद्यमिनो नृपस्य *BY*, I.2.
9. Vide his Aśvamedha type coins bearing the legend *aśvamedha-parākramaḥ*, one whose prowess is demonstrated by the performance of the horse-sacrifice. In the Poona, C. P. Inscr. of the Vākāṭaka queen Prabhāvatīguptā (V. V. Mirashi, *CII* V, No. 2, l.3), Samudragupta is described as 'the performer of many horse-sacrifices' (*anek-āśvamedha-yājin*). Rapson (*JRAS*, 1901, p. 102) and Allan (*Catalogue of Gupta coins*, p. xxxi) invite our attention to a seal with the figure of a horse and the legend *parākrama* and a stone figure of a horse in Lucknow which are in all probability reminiscent of Samudragupta's *Aśvamedha*.
10. Cf. his Aśvamedha type coins in Bayana Hoard.

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Pravarasenal[1] were among those who distinguished themselves by performing one or more horse-sacrifices. Varāhamihira seems to distinguish *iṣṭi* from Śrauta sacrifices as can be seen from his use of *yajña* or *kratu* and *iṣṭi* immediately one after the other.[2] Utpala mentions *Putrakāmya* as an instance of *iṣṭi*. *Iṣṭi* is that type of sacrifice which is 'performed by a sacrificer and his wife with the help of four priests', viz., *adhvaryu*, *agnīdhra*, *hotṛ* and *brahman*.[3] Animal sacrifices were also in vogue (XLV. 58) and we have references to the *yūpa* or the sacrificial post to which was tied the animal to be offered into sacrifice (LXIX.10; XCVI.11). Varāhamihira in his *Bṛhadyātrā* compares the killing of enemies in war to that of animals in a sacrifice and regards both as free from sin. (I.2: *vinighnato vighnakarān na pāpaṁ kriyākrameṇ-eva paśūn makheṣu*).

ALTAR. The sacrificial altar is referred to as *citi* (XIX·6; XLII.13; XCVI.11) and *vedī* (XLIII.8; *YY*, VIII.1; *BY*, XVIII.1). In the *Yogayātrā* it is stated that an altar made in accordance with the directions of the *Śulba* works is auspicious (VIII.1—*vedī śubhā śulba-vidhāna-dṛṣṭā*).[4] An altar that is defective in regard to its measurement or curved in a direction was regarded inauspicious. A *vedī* defective in the east, south, west, north and middle was believed to be inauspicious for the town, priest, queen, army-chief and king respectively.[5] The dimensions of the altar differed from one caste to another. Thus it is laid down that the sacrificial *vedī* in the case of a Brāhmaṇa measures seven cubits (10½ ft.), of Kṣatriya 6 (9 ft.), of Vaiśya 5 (7½ ft.), of Śūdra 4 (6 ft.) and of mixed castes lesser than this. In case sufficient space is not available,

1. In the inscriptions of his successors Pravarasena I is styled चतुरश्वमेधयाजिन्. See *CII*, V, p. Nos. 4-5, l. 2; No. 6, l. 2, etc.

2. यज्ञेष्टिसक्ता:, 15.6; क्रतुवरेष्टि, 19.6.

3. *HDS*, II, pp. 986, 981 fn. No. 2228.

4. J. L. Shastri's edition gives the reading *śuddhu* and mentions the variant *śilpa*. This verse is cited by Utpala (*BS*, p. 525) without indicating its source and the reading given there is *śubha*. The reading given in the text is the one adopted by V. R. Pandit.

5. *YY*, VIII.1-2; *BY*, XVIII.1-2. The *YY* verses in question are cited by Utpala in his commentary on XLIII.8, p. 525.

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a *vedī* four cubits in extent is recommended for all the castes. A *vedī* with dimensions smaller or larger than the above was regarded so inauspicious as to cause sacrificer's death. A *vedī* measuring 21, 15, 9, 7, 5 and 3 cubits is recommended for nuptial sacrifice in the case of a Brāhmaṇa, Kṣatriya, Vaiśya, Śūdra, artisans and mixed castes respectively. In case so much space could not be procured, an altar measuring 5 cubits is prescribed for all. An altar, it is stated, should be square, even and well-measured.[1]

1. सप्तहस्ता ब्राह्मणानां वेदी यज्ञे प्रकीर्तिता ।
षट्करा क्षत्रियाणां तु पञ्चहस्ता विशां स्मृता ॥
चतुर्हस्ता तु शूद्राणां विवाहेऽपि सुनिश्चितम् ।
भुवे (read भुवो)ऽलाभेऽपि सर्वेषां चतुर्हस्ता प्रकीर्तिता ॥
इतराणामतो न्यूना निर्दिष्टा मुनिभिः सदा ।
अतो हीनाधिका वेदी यजमानस्य मृत्युदा ॥
यज्ञे विवाहे वक्ष्यामि वेदीमानं समासतः ।
त्रिसप्तहस्तविस्तारो ब्राह्मणानां प्रकीर्तितः ॥
क्षत्रियाणां पञ्चदश वैश्यानां नवमिता ।
कराः सप्त च शूद्राणां शिल्पिनां पञ्च कीर्तिता ॥
त्रिहस्ता इतराणां तु वेदीक्षेत्रमुदाहृतम् ।
भुवोऽप्यलाभे मर्त्यानां चातुर्वर्ण्ये प्रकीर्तिता ।
पञ्चहस्तमिता वेदी सर्वमङ्गलदायिका ।
त्यक्त्वा तु मध्यमपदं ब्रह्मस्थानान्निधापयेत् ॥
क्षेत्रस्यैशानभागे तु हस्तमात्रं समुत्थिताम् ।
चतुरस्रां मध्यसमां वेदीं कुर्यात् सुलक्षणाम् ॥

These verses follow *YY*, VIII.1. They are not found in Kern's and J. L. Shastri's editions. These stanzas are included in the *YY*. MS. No. I.O. 2110 (E 2990—R. R. 2 E) of the India Office Library and with the exception of the first four lines in No. Acc. 70-1869-70 (New No. 1D) of the Bhandarkar Oriental Research Institute, Poona. These are quoted in a footnote of his *YY* edition (unpublished) by V. R. Pandit. It is interesting to find these lines quoted by Utpala in his commentary on XLIII.8. Utpala cites a large number of verses and the first verse (not quoted by us) is expressly described by him as belonging to an *anyaśāstra* or another work of the *Ācārya* (i. e. Varāhamihira). Regarding other lines which he prefixes by तथा च nothing can definitely be said. They probably belonged to the *YY* as will appear from their inclusion in the aforesaid Mss. and from the statement of Utpala on *BS*, XLIII.8, p. 525,

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FIRES. As fire consumed sacrificial offerings and carried the same to the gods it is variously called *hutāśa*[1], *hutabhuj*[2] and *hutavaha*[3]. Varāhamihira does not mention by name any of the three fires required in a Śrauta sacrifice, viz., *gārhapatya*, *āhavanīya* and *dakṣiṇāgni*, which are, however, implied in the employment of the words *śikhin*, *anala*, *agni* and *dahana* in the sense of the numeral 3 (XCVII.1). There are references to Brāhmaṇas maintaining sacred fires (*āhitāgni*, XV.1; *BY*, XVIII.3-5).

OMENS FROM FIRE (AGNINIMITTAS). It will be shown in Chapter VI that the movements, form and colour of the fire and the sound produced by it were believed to foreshadow good or bad results.

OBLATIONS. As a general rule, it is stated that articles defiled or eaten by insects, ants and flies are not conducive to good results.[4] Sacrificial offerings are referred to as *sthālīpāka* (XLV.16, 58) and *caru* (XLV.36.37). Certain articles were intended for offering to particular gods only and our author mentions the *caru* especially meant for the Moon and Mars (XLV.36, 37).[5] *Khadira*, *palāśa*, *udumbara*, *kāśmarī* and *aśvattha* are recommended for sacrificial fuel sticks or *samidhs* (XLIII.12). Sticks of milky trees were prescribed for the sacrifice performed to avert the results of evil portents connected with fire (XLV.24).

THE PRIEST. Brāhmaṇas officiated as priests. Only two categories of priests, *hotṛ* (LIX.13) and *adhvaryu* (*BY*, XVIII.16-7), are named. We have references to Brāhmaṇas well-versed in all sacrifices.[6] Speaking of the royal priest, our author says that he should be skilful, outspoken, free from

that the *Ācārya* (Varāhamihira) has already described *vedī* (*vedī-lakṣaṇam ācāryeṇ-oktam*). Varāhamihira himself avers that he described the *vedī* in connection with *grahayaga* in his *Yātrā* work (XLIII.14).

1. V.33; XXIV.6.
2. XLII.32.
3. XCVI.11.
4. *Sattvair=alīḍhaṁ na pipīla-makṣikā-mal-āvilaṁ vā vijaya-pradaṁ haviḥ*, *YY*, VIII.3.
5. For a long list of articles offered in sacrifices, vide *BY*, IV.24-7.
6. सर्वयज्ञ, V.28; यज्ञविद्, XVI.8 (Utpala—यज्ञसूत्रविदः); मन्त्रसूत्रभाष्यज्ञ, XV.1 where Utpala takes *sūtra* to mean *yajñaśāstra*.

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physical defects and disciplined.[1] An idea of a priest's duties in those days can be had from the *Yogayātrā* (I.6) which states that if the chanting of the *mantras*, conducting ceremonial ablutions, *maṇi-bandhana*, expiatory rites, fire-worship, fasting, sacrifices to gods and muttering certain formulas, etc. could lead to success in reducing one's enemies, why should a priest not become a king.[2]

No religious rite of the Hindus is complete without gifts (*dakṣiṇā*) to the officiating priest and others connected with the rite and the sacrifice is no exception.[3] Gifts to the *purohita*, astrologer who inferred omens from fire, and to *śrotriyas* (Brāhmaṇas learned in the Vedas) constituted an essential part of a sacrifice. Those entitled to sacrificial gifts were called *dakṣiṇīya* (XLVII.80). A mystic significance was attached to the *dakṣiṇā*. Making gifts at the time of an eclipse was considered especially meritorious (V.14. Cf. *Mahābhārata*, Vana, 200.125). A large number of inscriptions, it should be noticed, aims at recording gifts at the time of solar and lunar eclipses.

In conclusion, it must be observed that sacrificial rites had come to be inseparably linked with the Paurāṇic ritual and fire-worship formed an essential part of almost all religious rites. To give only a few instances, *homa* was to be performed at the festival of Indra's banner, *Nīrājana* and other *śāntis* and even while installing an image, an act which had no place in Vedic religion.

II. *Image-worship*

CONSECRATION AND INSTALLATION. The hosts of deities named above were worshipped through the medium of their idols. An image, however, could not become an object of divine honour without being duly consecrated and enshrined. The procedure of consecrating and installing images appears

1. दक्षः प्रगल्भोऽविकलो विनीतस्तादृग्विधस्तस्य पुरोहितोऽपि । *BY*, I.4.

2. मन्त्राभिषेकमणिबन्धनशान्तिकर्महोमोपवाससुरयागजपादिमात्रम् ।
स्यात्सिद्धिहेतुरथ चेद्विजिगीषतोरीन् कस्मात्तदा नरपतिर्न भवेत्पुरोधाः ।। *YY*.I.6.

3. Cf. XLV.58, 64, 71 which refer to *homas* involving profuse *dakṣiṇā*

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to have been dealt with in earlier works also[1], but as they are lost, the oldest datable account of this subject is to be found in Ch. 59 of our work the contents of which are summarised below.

First of all, a pavilion for preliminary consecration (*adhivāsana-maṇḍapa*) was to be erected in the south or east (of a town) and decked with four *toraṇas* (ornamental archways) in four directions and covered with leaves of auspicious trees;[2] it was to be further decorated on all sides with flowers and banners of certain colours.[3] Inside the pavilion a raised altar was made; it was besmeared (with cow-dung), sprinkled with sand and strewn with *kuśa* grass; on this raised altar was placed the image to be installed with its head and feet resting on a *bhadrāsana* (a kind of throne) and a pillow respectively.[4]

Then the image was to be bathed with a mixture of the decoction (*kaṣāyajala*) of the twigs of *plakṣa*, *aśvattha*, *udumbara*,

1. LIX.19 which enumerates persons fit to instal images indicates that the various sects had already developed peculiar modes of worshipping their respective deities. Reference must be made in this connection to the concluding verse of the chapter (LIX.22) which states that Varāhamihira has in this chapter dealt with this subject in a general and succinct manner and that the preliminary consecration and installation proper are dwelt at length in the *Sāvitra Śāstra*; or, according to another interpretation, the consecration and installation of Sūrya are dealt with elaborately in the *Śāstra* of the Sauras :

सामान्यमिदं समासतो लोकानां हितदं मया कृतम् ।
अधिवासनसन्निवेशने सावित्रे पृथगेव विस्तरात् ॥

Cf. Utpala—

सावित्रे शास्त्रे प्रत्येकस्य देवस्याधिवासनसन्निवेशने अधिवासनं प्रतिष्ठापनं निवेशनं च ते पृथक्पृथग्विस्तराद्विस्तारेण तत्र भवतः अथवा सावित्रे सवितुरादित्यस्य ये अधिवासनसन्निवेशने पृथगेव विस्तारात् तच्छास्त्रे सौरे भवत इति ।

2. LIX.1. According to a var. reading (*saumyāyām*) noted by Utpala, the pavilion was to be constructed in the north.

3. LIX.2-3. The eastern, south-eastern, southern and south-western, western, north-western, northern, and north-eastern sides of the pavilion were to be decorated with flowers and banners of variegated, red, black, white, slightly yellowish, variegated, and yellow colours respectively.

4. LIX.7. For *bhadrāsana* see *infra* Ch. IV, Section 7.

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śirīṣa and *vaṭa* trees, all herbs (*sarvauṣadhis*)[1] bearing auspicious names, *kuśa* grass and the like; the earth dug out by elephants and oxen and that from mountains, anthills, river-confluences, ponds with growing lotuses, the *pañcagavyas* (cowdung, bovine urine, milk, curds and clarified butter), and perfumed water containing gold and gems. Next, to the accompaniment of the sounds of various musical instruments and the chanting of the *puṇyāha* and Vedic hymns it was placed with its head pointing to the east.[2] Brāhmaṇas recited *mantras* associated with Indra and Agni in the east and south-east respectively and were honoured with fees.[3] It was followed by fire-worship to the accompaniment of the *mantras* associated with the god whose image was to be installed and omens were to be interpreted from the movements of the fire and the priest.[4] Now the image bathed in the above manner was wrapped in a fresh cloth, decked with ornaments and worshipped with flowers and perfumes and was made to lie down on a well-spread couch (to sleep). After the sleep the image was roused with music, dance and similar other acts. Thus ends the preliminary consecration called *adhivāsana* to be followed by the actual installation (*pratiṣṭhā*) at the time approved by an astrologer.[5]

1. *Sarvauṣadhis*, according to Utpala (on LIX.8), comprise *jayā*, *jayantī*, *jīvantī*, *jīvaputrī*, *punarnavā*, *viṣṇukrāntā*, *abhayā*, *viśvambharī*, *mahāmodā*, *sahadevī*, *pūrṇakośā*, *śatāvarī*, *sahasravīryā* and *lakśmaṇā*.

2. LIX.8-10. V. S. Sastri (his edition of *BS*, p. 523) begins his translation of these verses with 'the image with its head pointing to the east should be bathed with.....'. Dr. J. N. Banerjea (*DHI*, p. 566) renders the beginning of verse 10 (*pūrvaśiraskām snātām*) as 'when the image is being bathed with.....it should be placed with its head towards the east.' The former presumes that the image is placed with its head to the east prior to its bath, while the latter thinks that the two acts of bathing and placing the image with its head to the east are simultaneous. That both these renderings are incorrect is shown by the following extract from Utpala-*Kṛtasnātāṁ pūrvaśiraskāṁ pūvasyāṁ diśi śiraḥ kṛtvā nyaset sthāpayet.*

3. LIX.11.

4. LIX.12-3. Some of the deities whose iconography is given above are undoubtedly of post-Vedic origin and therefore only Paurāṇic *mantras* could be uttered in their case. But curiously enough Utpala tells us that Vedic *mantras* pertaining to the god whose image was to be installed were to be recited :— *tad=daivatyair=vaidikair=mantraiḥ*. Does it indicate that even Paurāṇic *mantras* had come to be regarded as Vedic in Utpala's time ?

5. LIX.14-5.

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After worshipping the image with flowers, unguents and the sounds of conches and musical instruments, it was carefully taken to the sanctum sanctorum keeping the temple to the right; then copious offerings (*bali*) were made to the deity; Brāhmaṇas and other persons assembled there were honoured; a piece of gold was thrown in the pit of the pedestal and the image fixed therein. The ceremony ended with the honour done to the consecrator, astrologer, Brāhmaṇas, the sculptor (*sthapati*) and other persons in the ghathering[1].

LIX.19 is important in as much as it does not simply mention the persons fit to consecrate the images of different divinities, but also throws valuable light on the religious conditions of India in our author's time. Thus we are told that Bhāgavatas are entitled to consecrate the image of Viṣṇu; Magas of the Sun, ash-besmearing Brāhmaṇas (Pāśupatas) of Śiva; those well-versed in the peculiar mode of worship called *maṇḍala-krama* of the Divine Mothers; Brāhmaṇas well-versed in the Vedas of Brahmā; Śākyas (Buddhist monks) of the Buddha; and naked monks (Digambaras) of Jina.[2]

Varāhamihira recommends the installation of divine images on a day other than Tuesday in the bright half of a month in the northern solstice, when the moon is posited in the *varga* of Jupiter and the Ascendant is a fixed sign and a fixed *navāṁśa* is rising, when benefics occupy 5th, 9th and the *kendra* houses, and malefics are in *upacayas* (3rd, 6th, 10th or 11th houses), and when the moon is in any of the asterisms, 3 Uttarās, Rohiṇī, Mṛgaśiras, Anurādhā, Revatī, Śravaṇa, Tiṣya and Svāti (LIX.20-21).

1. LIX.16-8.

2. विष्णोर्भागवतान् मगांश्च सवितुः शम्भोः सभस्मद्विजान
मातॄणामपि मण्डलक्रमविदो विप्रान् विदुर्ब्रह्मणः ।
शाक्यान् सर्वहितस्य शान्तमनसो नग्नान् जिनानां विदु-
र्येयं देवमुपाश्रिताः स्वविधिनां तैस्तस्य कार्या क्रिया ॥ LIX.19.

Utpala's remarks are worth-quoting : पञ्चरात्रविधिना विष्णोः । सौरदर्शनविधानेन सवितुः वातुलतन्त्रोक्तेनान्यतन्त्रोक्तविधिना वा शम्भोः मातॄणां स्वबल्पविहितविधानेन ब्रह्मणो वेदविहितकर्मणा बुद्धस्य पारमिताक्रमेण अर्हतां तद्दर्शनविधिना क्रिया कार्या ।

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SHRINES IN INDIVIDUAL HOUSES. Besides the public temples, individual houses also appear to have usually possessed shrines of sectarian deities. According to our author, household shrines were to be built in the north-east corner of the house (LII.116). The tradition continues to this day.

ARTICLES USED IN WORSHIP. Mention is made of a number of articles (*argha* and *bali*) used in worshipping the images of various gods.[1] Certain articles were considered to be especially appropriate for particular deities. Thus, flesh, rice and wine are especially recommended to be offered to the Piśācas and goblins; oil-bath, collyrium, sesamum, flesh and rice, to the manes; the hymns of the *Ṛg-*, *Yajur-* and *Sāma-Veda*, perfumes, incense and garlands, to the seers; unmixed colours and *tri-madhura* (honey, clarified butter and sugar), to Nāgas; incense, clarified butter, oblations, garlands, precious stones, invocations and salutations, to gods; perfumes, garlands and other fragrant articles, to the Gandharvas and divine nymphs; and offerings of all colours, to others; *pratisara* (saffron-coloured thread), cloths, banners, ornaments and sacred thread (*yajñopavīta*) were to be offered to all the divinities specified above (XLVII.30-33).

MUSIC AND DANCE. It will appear from the account of the consecration of divine images given above that along with the sounding of musical instruments singing and dancing had also come to be regarded as necessary adjuncts of image-worship. Similarly, singing, dancing and other festive observances are recommended for warding off the evil results of divine portents (XLV.17). This indicates that the practice of attaching courtesans or dancing girls (now called *Devadāsīs*) to temples had come into existence. It finds confirmation from Kālidāsa's *Meghadūta* (Pūrvamegha, 35) which clearly refers to courtesans dancing and holding fly-whisks at the

1. The following articles were most commonly used as will appear from numerous references: seasonal perfumes, flowers and fruits, gems, gold, cloths, delicious food preparations like *palala*, *ulloṭikā*, wines and curds, flesh, drinks, incense, clarified butter, honey, fried rice, bath, unguents, *madhuparka* (a mixture of honey, clarified butter and curds or milk), and and animal offerings (vide XII.11, 15-18; XXIV.6; XLII. 60; XLIV .14; XLV.15-6, 36, 58; XLVII. 18-19, 27-8; LII.97, 123; LVIII. 4, 8-9; LIX. 14, etc.).

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Mahākāla temple of Ujjayinī. In later times it became an established practice and is referred to in a number of literary works and inscriptions.[1]

DAIVATA-YĀTRĀ. A brief reference may now be made to a kind of temple-festival called *daivata-* or *sura-yātrā*.[2] Vātsyāyana (*Kāmasūtra*, I.4, 26, 33) calls it *ghaṭā* and informs us that it was held in honour of various deities. It is a kind of religious procession in which the idol of a particular god or goddess is taken in a cart or chariot in front and is still prevalent.

III. *Śāntis*

Śānti denotes the expiatory rites performed by Brāhmaṇas for averting an evil or calamity. Utpala defines it as the application and chanting of Vedic *mantras* with a view to ward off calamitous happenings resulting from portentous phenomena.[3] *Śāntis* were also observed to negative evil results of such trifle matters as procedural mistakes at the Indramaha (XLII.61) and evil signs of *paṭṭas* (XLVIII.8)[4]. The constellations of Uttarāṣāḍhā, Uttara-bhadrapadā, Uttara-phalgunī and Rohiṇī were considered suitable for *śāntis* (XCVII.6). We get elaborate accounts of two *śāntis*, *Nīrājana* and *Puṣya-snāna*.

NIRĀJANA.[5] *Nīrājana* was a ceremony of politico-religious nature held by kings. The name refers to the act of touching (*ajana*) with water (*nīra*) of horses, elephants and soldiers which constitutes the most significant rite of this ceremony. Its popularity is vouched for by references in Kauṭilya and Kālidāsa.[6] The rites of waving lights and lustration of

1. *EI*, II, p. 227; XI. pp. 26-7; XIII.58; *Rājataraṅgiṇī*, IV. 269-71.
2. *Daivatayātrā* is the reading given in printed editions. The variant *surayātrā* is noticed by Utpala, XLV.9.
3. उत्पातप्रतीकारार्थं वेदोक्तमन्त्रपाठविनियोगानुष्ठाता शान्तिकविद्याभिज्ञः *BS*, Vol. I, p. 21.
4. Also cf. XCVI.17.
5. *Nīrājana* is called a *śānti* in XLIII.2, 6, 21. The house wherein *Nīrājana* was held is called *śāntisadma* or *śānti-gṛha* (XLIII.4, 5); the recitation of *śāntika mantras* is prescribed in XLIII.20.
6. *Arthaśāstra*, BK. II, Chs. 30, 32, pp. 135, 139; *Raghuvaṁśa*, IV.25.

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arms on the 10th of the bright half of Āśvayuja are its modern descendants. The contents of Ch. XLIII of the *Bṛhatsaṁhitā* which describes it are summarised below.

Nīrājana was to be held when Viṣṇu wakes up from his sleep, on the 8th, 12th or 15th[1] day of the bright half of Kārttika or Āśvayuja.[2] According to Kauṭilya, however, it was to be performed on the 9th day of Āśvayuja, at the beginning or end of an expedition, at the time of a distress and during *cāturmāsya* (i.e. four months of the rainy season) and when two seasons meet.[3] First, to the north-east of the town, on an auspicious spot were to be erected a wooden arch, 16 cubits high and 10 in extent, and a house for the ceremony made of the branches of *sarja, udumbara* or *kakubha* tree, strewn with *kuśa* grass and provided with a door adorned with bamboo fishes, banners and discuses; then *bhallātaka* nuts, rice, costus and white mustard seeds were tied with a string dipped in saffron paste to the necks of the horses who were brought to this house; with the *mantras* addressed to the Sun, Varuṇa, Viśvedevas, Prajāpati, Indra and Viṣṇu, *śānti* was gone through for the horses for a week; once worshipped, the horses were not to be spoken to harshly or beaten, their fear being dispelled by the sounds of *puṇyāha*, conches, musical instruments and songs; on the 8th day to the south of the arch was erected a hermitage strewn with *kuśa* grass and barks of trees facing north; the fire was kindled in an altar in front; jars full of sandal, cotsus, madder, orpiment, red arsenic, *priyaṅgu, vacā, dantī, amṛtā, añjana,* turmeric, *suvarṇa-puṣpā, agnimanthā, śvetā, pūrṇakośā, kaṭambharā, trāyamāṇā, sahadevī, nāgapuṣpā,*

1. That Utpala is mistaken in taking *Pañcadaśī* to refer to both Pūrṇimā and Amāvāsyā is shown by the specification of bright fortnight in the couplet under reference (i.e. XLIII.2).

2. भगवति जलधरपक्ष्मक्षपाकरार्केक्षणे कमलनाभे ।
उन्मीलयति तुरङ्गमकरिनरनीराजनं कुर्यात् ॥
द्वादश्यामष्टम्यां कार्तिकशुक्लस्य पञ्चदश्यां वा ।
आश्वयुजे वा कुर्यान्नीराजनसंज्ञितां शान्तिम् ॥

Viṣṇu gets up on the 11th of the bright half of Kārttika. According to Utpala, it shows that *Nīrājana* was not to be solemnised during rains.

3. *Arthaśāstra*, II, 30.51; II, 32.21.

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ātmaguptā, *śatāvarī* and *somarājī* along with various dishes were to be offered; sacrificial twigs made of the timber of *khadira*, *palāśa*, *udumbara*, *kaśmarī* and *aśvattha* and the sacrificial ladle of gold or silver were to be used; the king, accompanied by a horse-physician and an astrologer, sat on tiger-skin facing east in front of the fire; omens were to be inferred from the altar, priest and fire.[1]

Next, omens were interpreted from the movements of horses and elephants; thus a horse and an elephant, duly consecrated, bathed and adorned with fresh white cloths, perfumes, garlands and incense were to be brought slowly and with flattering words under the arch near the hermitage resounding with the sounds of musical instruments, conches and *puṇyāha*; if the elephant or horse, thus brought, stands with its right leg uplifted, it foretells victory to the king; if it stands frightened, contrary results are to be expected; the priest then gave the horse a rice-ball duly consecrated with *mantras*; its smelling or eating by horse indicated victory, otherwise defeat; so on and so forth; further, reciting expiatory and *pauṣṭika mantras*, he touched the horses, elephants, soldiers and the king with a twig of *udumbara* dipped in the water of the pitchers already kept for the purpose.[2]

The ceremony concluded with a mock military march; first of all, with the chanting of magic hymns of the *Atharvaveda*, the priest pierced with a *śūla* the heart of the clay figure of the enemy and gave the rein to the horse; mounting the horse; the king was to proceed towards the north-east with his forces[3].

PUṢYA-SNĀNA. *Puṣya-snāna* was a ceremonial ablution held by kings every year, preferably on the full-moon day of Pauṣa. It could be observed at any other time, but that in Pauṣa was considered to be the most meritorious (XLVII. 82). It was also celebrated at the time of royal consecration and was believed to bless the king with overlordship and the birth of a son (XLVII.85). It was regarded as the most auspicious rite capable of remedying all kinds of portentous phenomena, disturbances, occurrence of eclipse, comets and planetary

1. XLIII.3-14.
2. XLIII.15-20.
3. XLIII. 21-8.

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conflicts (XLVII.3, 83-4). This ceremony was also gone through for elephants and horses to free them from diseases (XLVII.87). It is stated that this ablution was taught by Brahmā to Bṛhaspati for the sake of Indra and later it was obtained by Vṛddha-Garga who imparted it to Bhāguri (XLVII.2, 86).

It was to be performed at a beautiful spot in a forest, a house near it, river-banks, ponds, a cow-pen, sea-shore, hermitages of ascetics, temples, *tīrthas*, parks or where the earth slopes down towards the east or north and where water flows from left to right (XLVII.4-17). To begin with, an astrologer, minister, and the priest went out of the town at night and made offerings in the east, north or north-east; the priest invited gods, quarters, Nāgas, sages and others for conferring *śānti* on the king, worshipped them, stayed there during that night and interpreted omens from dreams; the next morning, at the venue of the ceremony representations of the earth with various localities, Nāgas, Yakṣas, gods, manes, Gandharvas, Apsarases, Munis, Siddhas, planets and constellations, Rudras, Divine Mothers, Skanda, Viṣṇu, Viśākha, Lokapālas and of divine damsels were drawn with various charming coloured and perfumed powders in a circle (*maṇḍala*) and worshipped with numerous objects specially prescribed for them (XLVII. 18-33).

To the west and south of the circle were to be made two altars, one for the ablution and the other for sacrifice, and fire kindled in the latter; necessary materials including long blades of *kuśa* grass that have passed their sprouting stage, fried rice, clarified butter, barley-grains (*akṣata*), curds, honey, white mustard seeds, perfumes, flowers, incense, yellow orpiment, collyrium, sesamum, and delicious fruits of the season were collected and earthen plates filled with the *pāyasa* and ghee placed in the circle; worship with the above articles was offered on the western altar; on the four corners of this altar were to be placed firm pitchers with white threads tied round their necks, and leaves and fruits of milky trees on their mouths, and filled with water mixed with medicinal herbs[1] meant for *Puṣya-snāna* and gems; next, materials necessary for *Puṣya-*

1. *Oṣadhis* are enumerated in XLVII.39-41.

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snāna, such as medicinal herbs, all kinds of seeds, auspicious objects like curds, *akṣata*, and flowers, juices of all tastes, gems, *bilva* and *vikaṅkata* fruits and gold were to be collected (34-42). The ceremony of ablution proper followed. Skins of two bulls (1. of a bull with auspicious marks and dead in old age to be placed with its neck turned to the east, and 2. unimpaired red skin of a fighting bull), a lion and a tiger were spread one over the other on the western altar; over these skins was placed a *bhadrāsana* made of gold, silver, copper or of the wood of a milky tree; a piece of gold was placed inside it. The king wearing an unwashed linen cloth and surrounded by his ministers, priests, astrologers and others sat on the *bhadrāsana* and amidst the sounds of *punyāha*, Vedic *mantras*, conches, tabors, etc. made offerings and did worship; the priest covered him with a blanket and bathed with pitchers containing clarified butter; the number of pitchers may be 8, 28 or 108, the larger the number, greater will be the religious merit;[1] then the blanket was to be removed; the king bathed with water meant for the ablution containing fruits and flowers, and a *mantra* (55-70), which enumerates the gods, goddesses, etc. who are said to have consecrated Indra in former times, was recited. After the bath the king wore a pair of cotton cloths sanctified by certain *mantras*, worshipped his umbrella, banner, weapons, and his tutelary deity, and put on a new ornament which in consequence of being sanctified with certain hymns was supposed to bestow longevity and victory on its wearer (43-74).

Next, having gone to the sacrificial altar in the south, the king sat over the hides of a bull, cat, antelope, spotted deer, lion and tiger placed one over the other; a sacrifice was offered and omens were taken; the gods invited earlier were bidden farewell to; and the king made rich gifts to the astrologer, priest and others (75-80).

The ceremony concluded with the king granting people freedom from fear, freeing animals brought by butchers to slaughter-houses, and releasing prisoners except those that threaten the king's person or the harem (81).

1. XLVII.52-3 is called a *mantra*; it describes the qualities of clarified butter.

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It may be briefly noticed here that in his *Bṛhadyātrā* (IV. 19-23) and the *Yogayātrā* (VII) our author describes the ceremonial ablution called *Nakṣatra-vijaya-snāna* preceding a march for victory and various water-preparations for bath in different constellations. The *Yogayātrā* also names various food-preparations to be relished by the king in different constellations before undertaking military operations. The *Vijaya-snāna* described in the *Bṛhadyātrā* (XVII) is practically identical with the one described above, except for a few details. The limitations of space forbid even a brief account of all these ceremonies.

This ceremony appears to have been actually performed before an aggressive operation. Bāṇa, for example, tells us that before undertaking his ambitious military operations, Harṣa, seated on a *bhadrāsana* kept over the skin of a tiger, bathed at an auspicious moment with water contained in golden pitchers, offered sacrifice, bestowed costly gifts on the Brāhmaṇas, put on fresh *dukūla* garments, and some sanctified ornaments (*śāsana-valaya* and *gamana-maṅgala-pratisara*), restored certain courtiers to their former positions and granted general amnesty to prisoners.[1]

KOṬIHOMA. The *Koṭihoma* was performed in order to avert divine calamities (XLV.6). According to the *Matsya-purāṇa* (XCIII.5-6), it was a variety of *Navagrahahoma*, while the *Bhaviṣyottara* (CXLII.11-12) describes it as a *śānti* rite. The *Agni-purāṇa* (CXLIX.7-10) states that if a king gets *Koṭihoma* performed by the Brāhmaṇas enemies cannot stand before him in the battle and there is no pestilential disease or calamity in his country; excessive rain, drought, mice, locusts, parrots, demons and all the foes are conjured away; one who performs *Koṭihoma* gets every desire fulfilled and goes to heaven bodily. It was an elaborate rite involving a million *āhutis* and requiring the services of 20, 100, 1000 or more Brāhmaṇas. The *Matsya* (XCIII.119) equates it to 100 *Aśvamedhas* in merit. According to the *Harṣa-carita* (V), it was performed when Prabhākaravardhana was on his death-bed.[2]

1. *Harṣacarita*, VII, pp. 273-4.
2. For the procedure of *Koṭihoma* vide *HDS*, Vol V, Part I, p. 290, Part II, pp. 752-54, 761.

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Besides, the king was required to hold *śāntis* to ward off the dire consequences resulting from abnormal physical phenomena. They will be briefly noticed in connection with portents in Ch. VI.

IV. *Saṁskāras*

According to the Hindu view of life every twice-born has to undergo certain religious sacraments or *saṁskāras* (XCVII. 15) which were believed not only to wash away physical impurities but also to sanctify this as well as the other life.[1] Of these our author names only *Niṣeka* (II, p. 68) or conception, *Jātakarma* or birth ceremonies (*YY*, VIII.19), and *Karṇa-vedha* or boring the ears (XCIX.6).[2] The *Upanayana* or initiation ceremony is called *Mekhalā* (XCVII.15) apparently because the tying of the girdle round the waist constituted one of the most essential items of the ceremony. The *saṁskāras* were regarded as *pauṣṭika* or strength-giving rites and the *Jātakarma* is expressly so called. There is also a reference to offering oblations into the fire at the time of the birth and marriage ceremonies (XLII.37). The marriage ceremony will be described in the next chapter.

V. *Other Practices*

We have casual references to the following practices also.

ŚRĀDDHA. As now, *śrāddha* feasts were popular then also. Varāhamihira represents a learned astrologer as sanctifying the row of Brāhmaṇas entertained at a *śrāddha* feast (II.13).[3] *Pitṛpūja*, the worship of manes, is said to prosper in the Māgha year of Jupiter's cycle (VIII.6). Thursday is recommended for rites connected with the manes (CIII.62). Of the precious stones, emerald was considered to be especially

1. *Manu*, II 26-7. For a discussion of the purposes of the *saṁskāras* see R. B. Pandey, *Hindu Saṁskāras*, Ch. III.

2. It is said that the ears should be pierced when the benefics are posited in the 11th house, when an auspicious sign is rising and is not associated with the malefics and Jupiter is in *Lagna*, and when the moon is posited in any one of the asterisms Puṣya, Mṛgaśīras, Citrā, Śravaṇā and Revatī.

3. But *contra Mahābhārata*, XIII, 19.7, 11, where *sāmudrikas* and astrologers are included among the *apāṅkteyas*.

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suitable for use in worshipping manes (LXXXII.1). There is also a reference in the *Yogayātrā* (IV.47) to the practice of offering *piṇḍas* to the manes at Gayā which is still very popular.

TIRTHAYĀTRĀ. The *tīrthas* were regarded as sacred and are recommended as venues for certain religious rites like *Puṣya-snāna* (XLVII.15). The water from *tīrthas* was used for bathing an image (LIX.9), and the death at *tīrthas* considered to be meritorious (LXVIII.12,19). This practice is still current and a considerable portion of the population of Vārāṇasī, Gayā and such other famous places of pilgrimage is constituted by people flocking there during their last days.

UPAYĀCITAKA. It was a sort of thanks-offering to the gods.[1] While describing the preliminaries to a military expedition, Varāhamihira enjoins upon the king to make offerings to the hosts of various deities, request them to follow the army and promise them double offerings after the victory (*BY*, XV. 13; XXXIV.5; *YY*, VI. 27).

KĪRTANA. *Kīrtana* denotes the muttering of certain fixed formulas believed to yield desired objects. The recitation of the *Bhārata* (i.e. the *Mahābhārata*) was believed to forestal the evil outcome of a bad dream (*BY*, XVI.31) and the same along with that of the Vedas, Vedāṅgas, Purāṇas, Dharmaśāstras, Arthaśāstras and the *Rāmāyaṇa* at the commencement of a march considered to be very auspicious (*YY*, XIII.4).

VRATAS. We have several references to the *vratas* or religious vows which involved fast accompanied by the performance of certain rites (XV.2; XVI.19, 32; XCVII.15). One such *vrata* called *Rūpasattra* was observed with the desire of attaining beautiful physical features and is briefly described in CIV.1-13, contents whereof are summarised below. The observer of this *vrata* had first to constitute the stellar deity (Nakṣatra-puruṣa) in the manner specified above.[1] Then on the 8th day of the dark fortnight of Caitra when the moon passes through the asterism of Mūla, the performer worshipped Nakṣatra-puruṣa and Viṣṇu and observed fast, and when the *vrata* was over made costly presents to the astrologer.

Viṣṇu, under his various names, was believed to be the lord of the twelve months of a year, the months also being known by the names of the presiding deity. Thus the twelve months

1. See *supra*, pp. 166-67.

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beginning with Mṛgaśīrṣa were called Keśava, Nārāyaṇa, Mādhava, Govinda, Viṣṇu, Madhusūdana, Trivikrama, Vāmana, Śrīdhara, Hṛṣīkeśa, Padmanābha and Dāmodara (CIV.14-15). It was believed that a man fasting on the 12th day of the several months and worshipping Viṣṇu under his respective names attains his position which is free from the fear of re-birth (CIV.16).[1]

Great significance was attached to fast which formed one of the pre-requisites of certain rites. A good astrologer was often expected to undertake fast (II, p. 21; XXIV.6). The king had to observe fast while adorning Indra's banner with ornaments and erecting and entering it into the town and bidding farewell to it (XLII.50, also XLV.15).

VI. *Black Magic*

A number of magical practices were also prevalent. *Abhicāra*[2] is the generic word denoting these practices. An astrologer was expected to be skilled in *abhicāra* (II, p. 20). We have references to persons well-versed and engaged in *abhicāra* (XV.4; XVI.18, 23; LXVIII.30). The *abhicāra* rites were to be performed with the chanting of the *mantras* from the *Atharvaveda* (XLIII.21 and comm.). The act of piercing the clay figure of the enemy following the ceremony of *Nīrājana*, noticed above, was an *abhicāra* rite. We may now take stock of a few other terms used to denote some similar practices. One of these terms is *kṛtyā* which, according to Utpala, denotes a woman raised from the fire amidst the recitation of *abhicāra mantras* for ruining an enemy (*abhicārakair=mantrair =agni-madhyād=yā strī utthāpyate sā kṛtyā*, on LXVIII.37). According to popular beliefs, *kṛtyā* could destroy even entire families (LXXIII.10. Cf. *Manu*, III.58). Varāhamihira refers to persons observing *kṛtyā* rites (LXVIII.37). The term *vetāla* means the act of infusing life into a dead body with the help

1. Under the name *Nakṣatra-puruṣa-vrata* it is described in detail in the *Matsya* (Ch. 54) and *Vāmana* (Ch. 80) *Purāṇas*.

2. Utpala defines *abhicāra* as follows (p. 20):—

कृत्यावेतालोत्थापनमारणोत्पादनविद्वेषणवशीकरणस्तम्भनचालनादिकमभिचारविद्या।

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of the *mantras* (*śava-śarīrasya mantraiḥ punar=utthāpanaṁ vetālaḥ*, on LXVIII.37). Mention is made of those well-versed in the doings of *vetāla* (*vetāla-karmajña*, XV.4). It was believed that if a *vetālīya* rite was wrongly performed, it spelled the ruin of the doer himself (*vinihanti tad=eva karma tān vetāilīyam=iv-āyathākṛtam*, CIII.59). The sharp constellations of Mūla, Ārdrā, Jyeṣṭhā and Āśleṣā are recommended for the rites connected with *vetāla* (XCVII.7). People also believed in the power of *mantras* or magical incantations and *kuhaka* or magical rites. Varāhamihira refers to experts in the use of the *mantras* (LXVIII.30). It was believed that one could win over another's heart by the use of *mantras* and *kuhaka* (LXXIV.5). Varāhamihira, for one, however, held that *mantras* and *kuhaka* are not capable of producing happiness but only harmful effects. It was believed that an evil eye (*aśubha-dṛṣṭi*) can be averted by worshipping gods and Brāhmaṇas, performing expiatory rites, muttering certain formulas, observing restraints, etc. (CIII.48). Varāhamihira mentions a number of astrological beliefs which will be noticed in Ch. VI.

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II

NON-BRĀHMAṆICAL SECTS

The information that we get about non-Brāhmaṇical sects like Buddhism and jainism is extremely meagre and fragmentary as compared to the rich material bearing on orthodox Brāhmaṇism analysed above. Varāhamihira refers to heterodoxy as *pākhaṇḍa* (VIII. 12; XV. 24; XLV.75) and to its adherents as *pākhaṇḍin* (V. 29; IX. 33; XV.10; XXXI.4)[1] which latter term Utpala invariably understands in the sense of people beyond the pale of Vedic religion (*Vedabāhya*). We have references also to *nāsikas* (atheists denying the authority of the Vedas, LXVIII.35) and their followers (XLV.75). Utpala takes the word *nāstika* to denote a Laukāyatika devoid of all religious rites (*nāsikāāṁ ca Veda-bāhyānāṁ laukāyatikānām*, XLV. 75; *nāstikaḥ kriyārahito Laukāyatikaprāyaḥ*, LXVIII.35). Our author flourished at a time when heterodoxy was fast losing ground and consequently viewed with disfavour. We need not, therefore, be surprised if a country ruled by a king devoted to *pākhaṇḍas* was supposed to be heading to its ruin (XLV.75).

I. *Buddhism*

Varāhamihira refers to Buddhist monks as Śākya-bhikṣu (XVI.14; CIII.61), Śākya (L.21; LIX. 19; *BJ* XV.1) and Śravaṇa (LXXXVI. 9, 36) and to nuns as *bhikṣuṇikā* (LXXVII.9). The word Arhat (L. 21) may denote either a Buddhist or a Jaina mark. The commentator invariably explains Śākya as *raktapatika* or *raktapaṭa*, indicating that in Utpala's time Buddhist monks and nuns used red robes.

Our author seems to have had profound reverence for the Buddha whom he describes as 'the father of the whole world' (*pit-eva jagato bhavati Buddhaḥ*, LVII.44), 'benevolent to all' (*sarvahitasya*) and as 'of serene mind' (*śāntamanasaḥ*, LIX.19). Further, he devotes one full verse to the description of the Buddha's iconography while many Brāhmaṇical gods, e.g. Brahmā, Skanda, Varuṇa, etc., are disposed of within fewer words. We are told that the Buddha, as if he were the father of the whole

1. Cf. VIII.12; XLV.75 where persons devoted (*bhakta*) to *pākhaṇḍas* are referred to.

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world, should be shown with his palm and soles marked with the figure of a lotus, a placid countenance, very short hair (*sunīca-keśa*), and seated on a lotus-seat[1]. These are only very general characteristics of the Buddha images and it is not necessary to describe the numerous specimens illustrating these features. This *dhyāna* is of the seated Buddha figure. No reference is made by our author to the standing Buddha figure. Only the Śākyas or Buddhist monks, we are told, are entitled to consecrate the image of the Buddha (LIX. 19). Utpala adds that it was to be installed in accordance with the *Pāramitās*.

II. *Jainism*

As compared with the Buddhists, references to the Jainas are much less numerous. The Jaina monks are referred to as Nirgrantha (LXXXVI.34.*BJ*, XV.I) Nirgranthi (L.21) or Nagna (LIX.19) which undoubtedly stand for the Digambaras. There is no tangible reference to the Śvetāmbaras. We get the following iconographic description of the Jina images: 'The god of the Arhats (a Tīrthaṅkara) should be represented nude, youthful, beautiful and serene in appearance, his arms reaching the knees and the breast bearing the Śrīvatsa mark.[2] These featuers are so general that any Jina image can illustrate them. According to Varāhamihira, only the nude Jaina monks could consecrate the Jina images (LIX.19).

III. *Ajivikas*

We have a solitary reference to the followers of the Ājīvika sect also (*BJ*, XV.1)[3]. The paucity of references probably indicates that the sect did not find much favour with the people.

1. पद्माङ्कितकरचरणः प्रसन्नमूर्तिः सुनीचकेशश्च ।
पद्मासनोपविष्टः पितेव जगतो भवति बुद्धः ॥ LVII. 44.

Utpala records the variant '*sunīta*' which J. N. Banerjea (*DHI*, p. 587) takes to refer to the short curls on Buddha's head turning from left to right, *dakṣiṇāvartamūrdhaja*, a characteristic sign of the Buddha.

2. आजानुलम्बबाहुः श्रीवत्साङ्कः प्रशान्तमूर्तिश्च ।
दिग्वासास्तरुणो रूपवांश्च कार्योऽर्हतां देवः ॥ LVII: 45.

3. For a full discussion of this reference *vide* my paper in *JOIB*, XII, 44-50.

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Chapter IV

SOCIAL LIFE

I

SOCIAL STRUCTURE

The *Bṛhatsaṁhitā* presents us with a life-like picture of contemporary social life in its various aspects. The life depicted in our work is unique in more than one way; many a recondite side of human life ordinarily not represented in literary compositions is revealed with meticulous details here. We may now proceed to analyse our data.

VARṆA. The institution of four castes (*cāturvarṇya*) was the foundation stone of Hindu social organisation. It is referred to both as *Varṇa*[1] and *Jāti*[2]. In contradistinction to the Śūdras, the first three *varṇas* were collectively known as *dvija* or *dvijāti*[3], for their members were entitled to perform the *Upanayana* (initiation) ceremony which was considered to be the second birth, a privilege denied to the Śūdras. The appellation *dvija* or *dvijāti* is, however, more frequently applied to the Brāhmaṇas in order to distinguish them from the other three castes.[4] The *varṇas* are usually mentioned in their descending order indicating the degree of the status they enjoyed in society.[5]

The caste system tended to be more and more rigid during our period. Varāhamihira carries the distinction of caste to the farthest limit. He associates white, red, yellow and black colours with the Brāhmaṇas, Kṣatriyas, Vaiśyas and Śūdras respectively. A few examples will not be quite out of place here. White, red, yellow and black rays of the sun in the rainy

1. III.19; XXXIII.14, etc.
2. VIII.10; XXXII.18; *BY*, XXIII.7; *YY*, IX.2, 4, etc. The word *jāti* is very often suffixed to the names of low castes, e.g. *Ugra-jāti* (XV.29; *YY*, IX.6), *Caṇḍāla-jāti* (XV.30; *YY*, IX.7), *Mleccha-jāti* (XVI.34).
3. *YY*, IV.4.
4. IV.23; V.20, 32, 71, 76; IX.39; XII.18; XV.1, XVIII.4; XIX.13; XXIV.7; XXXIII.14; LVIII.5; LXVIII.38; LXXIX.11; LXXXVI.3, etc.
5. Cf. *anuvarṇa* (III.19; LII 89), *varṇa-krama* (LXXI.4).

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season are said to destroy the four *varṇas* in order (III.25). Rāhu (eclipsed disc of the sun or moon) appearing white, red, yellow and dark (also *kāpota* or pigeon-like) was believed to afflict the Brāhmaṇas, Kṣatriyas, Vaiśyas and Śūdras respectively (V.53, 56, 57, 59).[1] The principle of colour was also adhered to in selecting sites for residential buildings or for temples (LII.94; LV.9). The colour of certain articles of daily use also differed from *varṇa* to *varṇa*. For instance, the handles of clubs, umbrellas, goads, canes, bows, canopies, spears, banners and chowries of the members of the four *varṇas* in the descending order were to be yellow, yellowish red, hued like honey and dark respectively (LXXI.4). The Brāhmaṇas had a special kind of umbrella prescribed for them (LXXII.6). The Kṣatriyas were to use red or yellow diamond; the Brāhmaṇas, white; the Vaiśyas, hued like *śirīṣa* flower; and the Śūdras, black (LXXIX.11).

Similarly, the four *varṇas* in order are assigned to the north, east, south and west respectively[2] (*pūrv-ādyāḥ Kṣatriy-ādyāś=caturdiśam*, LXXXV.34). It is laid down in connection with town-planning that members of the four *varṇas* should have houses in their respective quarters (LII.67-8).

The sites for the houses of persons belonging to different castes differed from one another in regard to colour, taste, smell and similar other matters (LII.89-95). Dwellings with various measurements are prescribed for different *varṇas* (LII.12-3, 15, 18-9). Similar the case with regard to the timber used in fashioning images (LVIII.5-6).

Before commencing the construction of a house, the owner had to draw lines touching his head, breast, thighs and feet according as he was a Brāhmaṇa, Kṣatriya, Vaiśya and Śudra (LII.98). This reminds one of the Puruṣa-sūkta of the *Ṛgveda* which postulates the origin of the four *varṇas* from the face, arms, thighs, and feet of the Puruṣa.

The caste distinction is extended to certain astrological phenomena also. Thus, an eclipse during northern or southern

1. Also cf. III, 19; X.21; XXX.17; XXXIII.14; XXXV.8; XXXVI.1; LI.1.

2. Also see V.32; XXX.16; XXXI.3-4; XXXIII.15; XXXVI.1. XLII.65;

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solstice was supposed to afflict the Brāhmaṇas and Kṣatriyas or Vaiśyas and Śūdras (V.32). We are told that persons belonging to the four *varṇas* are afflicted when the sun or the moon is eclipsed in certain parts of the sky (V.28-9). They were also supposed to be presided over by different asterisms and planets (XV.28-30; XVI.34). A halo (*pariveṣa*) appearing on the first four days of a month is said to bring ruin to the four *varṇas* in order (XXXIV.19). A meteor falling on its head, breast, side and tail or the one that is straight, glossy, unbroken and falling downward is said to hurt the four *varṇas* severally (XXXIII.14-5).

How far these distinctions were followed in practice is not possible to ascertain for want of reliable data.

The Brāhmaṇas are spoken of as aspiring to master the Vedas (XII.18), reciting Vedic *mantras* at sacrifices and other religious rites,[1] officiating at sacrifices[2] and religious ceremonials like *śāntis*, the festival of Indra's banner, formal entrance into a newly constructed house, *Nīrājana*, *Puṣyasnāna* and the installation of images.[3] There is a reference to Brāhmaṇas solely living on water, roots and wind, eschewing other food and performing penance (XII.6). At the conclusion of every religious rite they received *dakṣiṇā* or gifts consisting of various objects and were entertained at feasts.[4] The gifts bestowed upon the Brāhmaṇas in the prescribed manner were believed to secure the object for which they were given.[5] At one place gifts to Brāhmaṇas are said to be capable of averting calamities due to celestial portents.[6] They were considered to be capable of strengthening the nation by observing *śāntis* in the same way as a physician does in the case of one suffering from a disease or poison.[7] Non-observance of duties on their part

1. XIX.13; XLII.26; XLIII.6; XLVII.49.
2. XXIV.6; XLII.30; *YY*, VIII.2, 3, 8, 12, etc.
3. Chs. XLII, XLIII, XLV, XLVII, LII.123, LIX.
4. XLII.38; XLV.17, 24, 32, 37, 45, 53, 57-8, 64, 71-2; LII.97; LIX. 11, 17-8; XCVI.17; CIV.8; *BJ*, XVI.31; *YY*, II.23; IX.16-17.
5. आयान्ति ते स्वभवनानि पुनः कृतार्थाः ।
   दत्ता द्विजातिषु पुरा विधिवद् यथार्थाः ॥ *YY*, IV.58.
6. ...न तेषां भवति दुरितपाको दक्षिणाभिश्च रुद्धः । XLV. 17.
7. रोगाभिभूतं विषदूषितं वा यथा विनाशाभिमुखं शरीरम् ।
   वैद्यः प्रयोगैः सुदृढं करोति राष्ट्रं तथा शान्तिभिरग्रजन्मा ॥
   YY, III.23.

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was viewed seriously (IX.39). Their austere life and the services they rendered to the people in various ways elicited respect from all sections of society. The Brāhmaṇas are often mentioned along with gods, and a man dominated by the *sattva* quality is said to be devoted to them (LXVIII.8). The Rucaka and Maṇḍalaka types of men are also described as strongly attached to the Brāhmaṇas, teachers, gods, sacrifices and meditation (LXVIII.29, 38). Their blessings on the eve of a journey were highly valued[1] and their sight at the commencement of a military expedition regarded as auspicious (*YY*, XIII.11; XIV.23). A king whose army hated the Brāhmaṇas was regarded as easily assailable (*ibid.*, III.4). Their grace and the *mantras* recited by them at the commencement of a march were believed to enhance the vigour of the monarch[2] and to lead him to victory.[3] Wars were fought for the cause of the Brāhmaṇas, cows and the king.[4] A victorious monarch is exhorted not to confiscate the belongings of the Brāhmaṇas.[5]

They were distinguished from each other by the Veda to which they belonged. Thus the Brāhmaṇas of the *Atharvaveda* (*Ātharvaṇa*, *BY*, XVIII.13), *Sāmaveda* (*Chandoga*, *ib.*, XVIII. 10) and the *Ṛgveda* (*Bahvṛc*, *ib.*, XVIII.15) are mentioned. There is a reference to the Brāhmaṇas versed in the four Vedas (*cāturvedya*, *ib.*, XVIII.7). *Cāturvidya* Brāhmaṇas are also mentioned in some land grants of the Gupta period.[6] The word *śrotriya*, which denotes, according to the *Vaikhānasa Gṛhya Sūtra* (I.1), a Brāhmaṇa well-versed in a single Veda,[7] occurs in XLVII.5. *Gotra* was another distinguishing point : Brāh-

1. *BY*, XV.15; XVI.30; *TY*, IX.2; *YY*, XIII.1.
2. द्विजेन्द्रमन्त्राभिविवृद्धतेजाः । *BY*, XX.2.
3. संग्रामे वयममरद्विजप्रसादा–
   ज्जेष्यामो रिपुबलमाश्वसंशयेन । *BY*, XXXI, 2; *TY*, IX.28.
4. स्वाम्यर्थगोद्विजहिते त्यजतां शरीरम् । *YY*, XVI. 4.
   स्वामिगोब्राह्मणार्थे त्यक्तासून्। *YY*, XVI. 26.
5. *YY*, XVII.9; *BY*, XXXIV.8; *TY*, IX.33.
6. *CII*, III, p. 70, l. 6; p. 179, ll. 65-6; p. 238, l. 25; *EI*, XV p. 307. The legend *chāturvidyasya* is found on several seals and sealing from northern India.
7. वेदमधीत्य शारीरैरापाणिग्रहणात् संस्कृतः पाकयज्ञैरपि यजन् श्रोत्रियः।
   Quoted in *HDS*, II, p. 131, fn. 290.

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maṇas of Vasiṣṭha *gotra* are mentioned in V.72. The derogatory word *Brahmabandhu*[1] is found in *BY*, XVIII.24. A Brāhmaṇa who failed to perform the *Upanayana* sacrament in time was degraded from his caste and styled Vrātya *dvija* (LXXXVI.39).[2] According to Manu (II.39-40), such a person was excluded from Sāvitrī and despised by the Āryas, and unless he observed expiatory rites he could have no connection with the Brāhmaṇas either through the Veda or by marriage.[3]

Brāhmaṇicide was regarded as one of the most heinous crimes and a large number of penances are prescribed for its atonement. Our author refers to one such atonement as *Kāpāla-vrata*. 'When the cart of Rohiṇī,' says he, 'is broken through by Venus, the earth is strewn with hair and pieces of bones, as if it were observing the *Kāpāla-vrata* after committing a sinful act' (i.e., killing a Brāhmaṇa).[4] This follows the *Mānava-dharmaśāstra* which lays down that the murderer of a Brāhmaṇa, for purifying his own self, should live for twelve years in a cottage in the forest, subsisting on alms obtained by begging and making the head of the corpse as his ensign.[5]

In VIII.30, Kṣatra is represented as the ruling class.[6] In V.32, the word *narendra* stands for the Kṣatriyas. It shows that at least in theory regal power was confined to the second caste. In practice, however, there were undoubted departures from this theory. Yuan Chwang, for instance, refers to

1. Cf. *Brahmabandhur=adhikṣepe, Amara*, III.3.104.

2. Cf. Utpala :—यस्य ब्राह्मणास्याष्टमाद् वर्षादारभ्य षोडशवर्षं यावदुपनयनं न कृतं स व्रात्यो द्विजः ।

3. The expiatory rites by which a Vrātya could regain his previous position consisted of three *Kṛcchras* according to Manu (XI.192), *Vrātya-stoma* according to Yājñavalkya (I.38), and of *Uddālakavrata* according to *Vasiṣṭha Dharma Sūtra* (XI.76-9). Also see *HDS*, II, pp. 376-79; *K.V.R.* Aiyangar, *Aspects of the Social and Political Systems of Manusmriti*, pp. 109-10.

4. प्राजापत्ये शकटे भिन्ने कृत्वेव पातकं वसुधा ।
केशास्थिशकलशबला कापालमिव व्रतं धत्ते ॥ IX.25.

5. ब्रह्महा द्वादशाब्दानि कुटीं कृत्वा वने वसेत् ।
भैक्ष्याश्यात्मविशुद्ध्यर्थं कृत्वा शवशिरोरुहम् ॥ *Manu*, XI.72.

6. *Kṣatraṁ tadā śāsti ca bhūtadhātrim.*

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the Vaiśya kings of Thaneshwar and Paryatra,[1] Śūdra kings of Matipura and Sindh,[2] and Brāhmaṇa rulers of Ujjayinī, Jijhoti and Maheśvarapura.[3]

The first two *varṇas* are often paired to form the compounds like *Brahma-Kṣatra* (IV.31; IX.16; XVII.21), *Dvija-Kṣatra* (V.71), *Dvija-Kṣatriya* (XVIII.4) and *Dvija-nṛpati* (V.32), indicating, firstly, that their unity was considered essential for the proper maintenance of social order,[3a] and secondly, as compared to the next two *varṇas*, which are also sometimes coupled (*Viṭ-Śūdra* V.32; VIII.52), they occupied a higher place in social hierarchy. Any dissension between them was viewed seriously (XVII.21). Sometimes in contrast to the two upper castes, others are styled commoners (*prajā*, IV.31).

The Vaiśyas and Śūdras are represented as propitiating Agastya with the desire of obtaining cattle and wealth respectively (XII.18).

The caste determined one's social status (*Sārthe pradhānaṁ sāmye syāj= jāti-vidyā-vayo=dhikam*, LXXXV.11; *BY*, XXIII.7). References to the heads of castes[4] indicate the existence of caste organisations.

MIXED CASTES. Varāhamihira, who brands the mixed cates (*saṅkara*)[5] as *vivarṇa* (XXXVI.2) and *avarṇaja* (LXXXVIII.1), seems to adhere to the dictum of the Smṛtis that there are only four *varṇas* and no fifth exists (cf. *Manu*, X.4). The *dharmaśāstra*-writers derive the mixed castes from inter-caste marriages in the *anuloma*[6] and *pratiloma*[7] orders. Unlike the four traditional castes, mixed castes are assigned to intermediate directions (XXXVI.2; *BY*, XXXII.4). We get references to the following sub-castes :—

1. *Cāṇḍāla* (XV.30; *YY*, IX.7), one of the six primary *pratiloma* castes deriving its origin from the union of a Śūdra male

1. *On Yuan Chwang*, I, pp. 300, 343.
2. *Ib.*, I, p. 322; II, p. 252.
3. *Ib.*, II, pp. 250-257.
3a. Cf. *Manu*, IX.322.
4. *jāti-śreṣṭha* (VIII.10), Utpala—*jātīnāṁ ye śreṣṭhāḥ pradhānāḥ*; *Rājanya-mukhyān* (IV.24), Utpala—*Kṣatriya-pradhānān*. Cf. *Pāda-tāḍitaka* (*Chaturbhāṇī* edited by Motichandra), p. 156, which refers to the *Brāhmaṇa-pīṭhikā* for deciding matters relating to their caste.
5. IX.14; XVI.11; LXXXVIII.1; *BY*, XXXII.4.
6. i.e. union of a male of higher caste with a female of lower caste.
7. i.e. union of a man of lower caste and a woman of higher caste.

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and a Brāhmaṇa female.[1] Manu (X.16, 51-6) regards the Cāṇḍāla as the lowest of men and speaks of him as living outside the village, having dogs and donkeys for his wealth, dressing himself with the clothes of the dead, taking food from broken dishes, having iron ornaments and wandering from place to place. They were not allowed to enter a town or a village during the night and even during the day they could go about for their work bearing special marks.[2] They had to dispose of the corpses of persons having no relatives, be hangmen at royal orders[3] and take for themselves the clothes, beds and ornaments of the executed.

2. *Ḍombas* (LXXXVI.33), the same as the present-day Ḍoms who are placed in charge of cremation grounds.

3. *Niṣāda* (V.76), begotten by a Brāhmaṇa male on a Śūdra[4] or Vaiśya[5] woman. The *Amara* (II.10.19-20), however, treats Niṣāda as synonymous with Cāṇḍāla. Utpala takes Naikṛtikas (V.28; X.3)[6] to be the same as Niṣādas. Manu (X.48) assigns them fishing for their occupation.[7]

4. *Pāraśava* (LII.15), born of the union of a Brāhmaṇa man and a Śūdra woman.[8] Vidura was a Pāraśava and married the Pāraśavī daughter of king Devaka (*Mahābhārata*, Ādi, 108. 25; 113.12). Bāṇa had two Pāraśava brothers, Candrasena and Mātṛṣeṇa. We learn from a Tipperah CP. inscr. (A.D.

1. *Manu*, X.12; *Yājñavalkya*, I.93; *Arthaśāstra*, III.7; *Amara*, II.10.4.

2. Cf. Fa-hian (H.A. Giles, *Travels of Fa-hsien*, p. 21) :—"These (Cāṇḍālas) live away from other people; and when they approach a city or market, they beat a piece of wood, in order to distinguish themselves. Then people know who they are and avoid coming into contact with them." Also cf. जर्जरितमुखभागां वेणुलतामादाय नरपतिप्रतिबोधनार्थं सकृत्सभाकुट्टिममाजघान (चाण्डालकन्यकावर्णनम्)।

Kādambarī, *Pūrvabhāga*, p. 20.

For a graphic picture of Cāṇḍāla habits, dress and hamlet, see *ibid*, pp. 20-24; 686 ff.

3. Cf. *Mṛcchakaṭika*, Act X, where we meet two Cāṇḍālas acting as hangmen.

4. *Arthaśāstra*, III.7, p. 164; *Manu* X.8; *Yājñāvalkya*, I.91.

5. Haradatta on *Gautama Smṛti*, IV.14 mentioned in *HDS*, II, p. 86.

6. Cf. *BJ*, XIX.2 (*nikṛti*). Also cf. *Amara*, I.7.30 where *nikṛti* stands for deceit.

7. Cf. *Niṣādānāṁ prāṇi-ghātakānāṁ*, Utpala on v.76.

8. शूद्रायां विप्रतनये शास्त्रे पारशवो मतः, *Amara*, III.3.210.

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650) that Lokanātha's maternal grand-father Keśava, officer-in-charge of royal army, was a Pārasava.[1]

5. *Śvapaca* (L.5), variously called the offspring of an Ugra man and a Kṣattṛ woman,[2] a Ksattṛ man and an Ugra woman,[3] a Cāṇḍāla male and a Brāhmaṇa female, and of a Cāṇḍāla male and a Vaiśya female.[4] Varāhamihira classes Śvapacas among the *antya-jātyas*[5] and relegates them to the corners of a city, village or building (LII.82), indicating that they had their own settlements, probably away from villages. Manu classes them with the Cāṇḍālas and assigns identical occupations.[6]

6. *Ugra* (XV.29; XXXI.3; *YY*, IX.6), born of a Kṣatriya male and a Śūdra female.[7] Manu (X.49) requires an Ugra to pursue the occupation of killing the animals living in holes.

To add to its complexity, a number of foreign hordes, e.g., Yavanas (Greeks), Pahlavas (Parthians), Śakas, Hūṇas, Magas,[8] were absorbed in Hindu society. They were branded as Mlecchas. The Yavanas are clearly so called (II.14). They are associated with the mixed castes (XVI.11), showing that in the eyes of Brāhmaṇical writers they did not enjoy an honourable position in social hierarchy.

ĀŚRAMAS. By a strange coincidence the number of the *Āśramas* or stages into which the life of a *dvija* was divided is also four: those of a Brahmacārin or student, Gṛhastha or householder, Vānaprastha or forest recluse, and Sannyāsin or wandering ascetic. Varāhamihira refers to Vānaprasthas as *vanyāśana*, 'subsisting on forest products' (*BJ*, XV.1) and *tāpasa* (XIII.9; LVIII.2), and to Sannyāsins as *bhikṣu* (*BJ*, XV.1), *pravrajita* (L.5; LXXXVI.7), *parivrāṭ* (LXXXVI.36), *suparivrāṭ* (L.20) and *yati* (L.5). At one place we have a reference

1. *EI*, XV, p. 305.
2. *Arthaśāstra*, III.7, p. 165.
3. *Manu*, X.19.
4. *HDS*, II, p. 97.
5. Cf. *BJ*, II.77 (*antyaja*)
6. *Amara*, II.10.19-20, identifies the Cāṇḍālas and Śvapacas.
7. *Arthaśāstra*, III.7, p. 164, *Kṣatriyasya Śūdrāyām=Ugraḥ*; *Manu*, X.9; *Amara*, II.10.2, *Śūdrā-Kṣtriyayor=Ugraḥ*.
8. For references see *supra* Ch. II, Sect. 3; for Magas see *supra*, pp. 193-40.

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to hermits free from family ties, leading their life in the wilderness (II.7). According to Utpala, the word *āśramin* means a Sannyāsin (V.28; XV.24; LII.16). We have references to ascetics with shaven heads (*muṇḍa*) and wearing reddish clothes (*kāṣāyin*, *YY*, XIII.14; *TY*, IX.15). Mention is also made of female ascetics (*bhikṣuṇikā*, *pravrajitā* LXXVII.9).[1] But as we shall see in the next section, owing probably to their dubious character, they did not command any respect in society as is evident from the advice to protect women of good families against them. Varāhamihira speaks of persons revering ascetics, seeking admission to the ascetic order without success (*abhiyācita-mātra-dīkṣitāḥ*, *BJ*, XV.2) and giving up ascetic life (*BJ*, XV.1).

In XLVII.13, we find a conventional description of hermitages (*āśramas*) where "the lion is won over by a female deer, as anger by forgiveness and where the young ones of birds and the deer are granted freedom from fear." The *āśramas* were considered to be sacred and trees growing there were not allowed to be cut down (LVIII.2).

1. Cf. *BJ*, XXIV.16, which states that women born in certain combinations of planets and stars will undoubtedly take to ascetic life (*pravrajyā*).

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II

MARRIAGE AND POSITION OF WOMEN

Being the source of all family relations, marriage is the most important institution of social life. It is instrumental in propagating human race, perpetuating family line, and regulating sex-relations. Due to these and other reasons marriage was very highly thought of in many ancient nations, India being no exception (cf. *Manu*, III.7).

According to Hindu notions, a *dvija* is born with debt to sages, gods and manes, the last of which could be repaid by begetting children,[1] an aim properly attainable by marriage. The wife was considered to be man's half without whom he was not admitted to the privilege of performing sacrifices.[2] To these Manu (IX.28) adds sexual and other pleasures as an end for which a marriage was contracted. Thus the main objects of marriage were offspring, performance of religious rites and worldly pleasures.[3] Varāhamihira emphatically stresses man's dependence on wife for *dharma*, *artha*, *kāma* and sons.[4]

As to the qualifications of a bridegroom, our author states that he should be pure on his parents' side, handsome, young and of known character (*VP*, 8). Stressing the qualifications of the husband, he says that even though possessing all virtues, a girl, if married to a man devoid of necessary qualities, causes disrepute and loss of happiness and wealth to one (the girl's guardian) unable to find out a suitable match.[5] We have, however, a reference to the marriage procession of an old man puffed up with his wealth.[6]

1. *Taittirīya Saṁhitā*, VI.3.10.5; *Manu-smṛti*, IX.106.
2. Cf. *Śatapatha Brāhmaṇa*, V. 2.1.10; *Taittirīya Brāhmaṇa*, II.22.6; *Manu*, IX.96.
3. Vide *HDS*, II, pp. 428-29.
4. तदर्थं धर्मार्थौ सुतविषयसौख्यानि च ततो...LXXIII.4; धर्मार्थकामाय, *VP*, 15.
5. गुणैः समस्तैरपि सम्प्रयुक्ता कन्येव यात्रा विगुणाय दत्ता ।
करोत्यकीर्तिं सुखवित्तहानिं पात्रान्तरज्ञानजडस्य दातुः ॥ *YY*, II.14.
6. शुक्रे विनष्टे धनदर्पितस्य विवाहयात्रेव जरादितस्य । *YY*, V.11.

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Besides possessing auspicious physical features and being free from inauspicious ones[1], the bride should be a virgin (*kumārī*[2], *kumārikā*,[3] *kanyā*,[4] *kanyakā*[5]) and young (*yauvanasthā*, *VP*, 8). Varāhamihira speaks of youth, beauty, attractive dress, courtesy and knowledge of the arts of captivating a man's heart as the excellences of women (LXXVII.13). From this, we may conclude that usually women were physically and mentally mature at the time of marriage. The physical characteristics of the virgin enumerated in the Kanyā-lakṣaṇādhyāya of the *Bṛhat-saṁhitā* (Ch. LXIX) confirm our view. Sanskrit classics, it is interesting to note, have for their heroines grown up girls capable of indulging tnto the intricacies of love.[6] The censure of *dharmaśāstra*-writers against post-puberty marriages,[7] therefore, seems to represent their own views rather than the actual state of things.[8]

People normally married within their own caste;[9] but

1. See LXIX.1-9 for auspicious characteristics and LXIX.15-23; LXXVII.16-18 for inauspicious ones. Also cf. *Viṣṇu-purāṇa*, III.10.16-23; *Manu*, III.4 ff.

2. LXIX.1.

3. *VP*, 64.

4. *Ib.*, 10, 13; *YY*, II.14.

5. *VP*, 8, 20.

6. Mālavikā in the *Mālavikāgnimitra*, Śakuntalā in the *Abhijñāna-Śākuntala*, Mālati in the *Mālatī-Mādhava* and Rājyaśri in the *Harṣa-carita* may be named in this connection.

7. Cf. *Vasiṣṭha-dharmasūtra*, XVII.18; *Manu-smṛiti*, IX.94; *Baudhāyana-dharma-sūtra*, IV.1.12; *Viṣṇu-purana*, III.10.16. Also cf. *HDS*, II, pp. 439-446; A.S. Altekar, *Position of Women in Hindu Civilisation*, pp. 49 ff. Varāhamihira mentions *vṛṣalī-pati* as the recipient of *dakṣiṇā* at the propitiation of Śaturn (*BY*, XVIII.18-20). Parāśara defines *vṛṣalī-pati* as a Brāhmaṇa marrying a woman who has attained puberty (*Parāśara-smṛti*, VII.8-9). Varāhamihira does not seem to hav employed the word in its technical sense. It may refer to the marriage of a Brāhmaṇa with a Śūdra woman.

8. The lowering of the marriageable age of girls was accelerated, among other things, by the desire to maintain absolute physical chastity of women and to avoid even their theoretical enjoyment by the divine husbands, Soma, Gandharva and Agni, cf. *Samvarta*, verses 64, 67; *HDS*, II, p. 443; Altekar, *Position of Women*, pp. 57-8. Varāhamihira refers to this myth in slightly different words :—

सोमस्तासामदाच्छौचं गन्धर्वः शिक्षितां गिरम् ।
अग्निश्च सर्वभक्षित्वं तस्मान्निष्कसमाः स्त्रियः ॥

LXXIII.7.

9. Cf. *On Yuan Chwang* (I, 168) :—'The members of a caste marry within the caste, the great and the obscure keeping apart.'

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terms like Pāraśava, Ugra, Caṇḍāla, Niṣāda and Śvapaca, which denote the offspring of inter-caste unions,[1] testify to the prevalence of inter-caste marriages during our period. There is evidence, literary and epigraphic, to show that such marriages actually took place. The Vākāṭaka Rudrasena II, a Brāhmaṇa of Viṣṇuvṛddha *gotra*, for example, married Prabhāvatīguptā, daughter of Candragupta II. The Kadamba ruler Kākutsthavarman, fourth in descent from Mayūraśarman, the Brāhmaṇa founder of the dynasty, married his daughters to Guptas and others.[2]

MARITAL RITES. Varāhamihira refers to *varaṇa or* wooing, (*BJ*, XXIV.16), *vivāha-yātrā or* marriage procession (*YY*, V.11), *madhuparka* (*VP*, 96) and subsequent rites performed in the presence of fire (*ib.*). The rite of grasping the bride's hand by the bridegroom is implied in the word *pāṇigraha* used to denote marriage (XCIX.7; *VP*, 14). According to the *Vivāhapaṭala* (96), the bridegroom observed some auspicious practices (*kautuka-maṅgala*) prior to the marriage proper.[3] In the *Harṣacarita* (IV), we find Grahavarman observing local customs in the *kautuka-gṛha* before marriage.[4] This practice is still current in Panjab but changes in the Meerut region where marriage is followed by the observance of local customs.[5] Similarly, the bride was required to worship Indrāṇī. A clay image of Indrāṇī was taken in procession by ladies to the bank of a river or tank where it was bathed and worshipped by the bride who brought it back to her house and worshipped thrice-in the morning, afternoon and evening—daily till marriage (*VP*, 9-14). In connection with Indumatī's *svayamvara*,

1. *supra*, Ch. IV, Section 1.

2. *EI*, VIII, p. 24. Haricandra, the Brāhmaṇa upstart of the Pratihāra dynasty, married a Kṣatriya lady, Bhadrā, cf. *EI*, XVIII, p. 95, text, l.3. In the *Mālavikāgnimitra*, Agnimitra, son of Brāhmaṇa Puṣyamitra, is seen marrying the Kṣatriya princess Mālavikā. Also see *supra* Ch. IV, section 1, under Pāraśava.

3. कृतकौतुकमंगलो वरो मधुपर्काद्यशनादनन्तरम् ॥
ज्वलिताग्निसमक्षमंगनां यदि वाप्नोति शुभाशभं ततः ॥ *VP*, 96.

४. परिहासस्मेरमुखीभिश्च नारीभिः कौतुकगृहे यद् यत् कार्यते जामाता तत् तत् सर्वमतिपेशलश्चकार कृतपरिणयानुरूपवेशपरिग्रहो गृहीत्वा करे वधूं निर्जगाम ।

5. V. S. Agrawala, *Harṣacarita, A Cultural Study* (Hindi), p. 83.

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Kālidāsa speaks of the absence of disturbances owing to the presence of Śacī there (*Raghuvaṁśa*, VII.3). This custom is noticed by Bāṇa also (*Harṣacarita*, IV). Sudarśanācārya, the commentator of the *Āpastamba-gṛhyasūtra*, mentions Indrāṇī-worship as a rite to be performed without *mantras*.[1] This custom is still followed in Maharashtra. Varāhamihira further recommends the observance of local practices.[2]

1. *HDS*, II, p. 527.

2. देशाचारस्तावदादौ विचिन्त्यो
देशे देशे या स्थितिः सैव कार्या ।
लोकद्विष्टं पण्डिता वर्जयन्ति
दैवज्ञोऽतो लोकमार्गेण यायात् ॥
VP, 79.

A master diviner as he was, Varāhamihira naturally stresses astrological factors in selecting an auspicious moment for connubial rites. As these considerations have an important bearing on the then practices, we may set them out here. 'Marriage', says our author, 'should be celebrated in the constellations Rohiṇī, the three Uttarās (i.e. Uttarāṣāḍhā, Uttarabhadrapadā, Uttaraphalgunī), Revatī, Mṛgaśiras, Mūla, Anurādhā, Maghā, Hasta and Svāti ; when the signs Kanyā, Tūla, or Mithuna are in the rising; when the benefics are in the *bhavas* other than the 7th, 8th and 12th; when the moon is in the 2nd, 3rd or 11th house from the *lagna*; when the malefics are in the 3rd, 6th, 8th or 11th house; when Venus is not in the 6th house and Mars in the 8th; when the moon does not come into conjunction with the sun, Mars, Saturn or Venus and is not hemmed in between the malefics; on a day free from Vyatipāta, Vaidhṛti or Viṣṭi; on a *tithi* other than the 4th , 9th and 14th; on a day presided over by a benefic planet; in the northern solstice; in a month other than Pauṣa and Caitra; and when the rising Navāṁśa is occupied by a biped sign. It must also be ascertained that the *Rāśis* of the bride and bridegroom are not 2nd and 12th, 5th and 7th, and 6th and 8th from each other and that the sun and the moon for the bridegroom and bride respectively are favourable (XCIX.7-8). The good or bad result of the constellation in which a marriage is solemnised is said to accrue in as many years as the stars constituting its number (XCVII.3). We know from the *VP*, 17-23, that ancient writers differed as to which among the year, solstice, season, month, fortnight, *tithi*, asterisms, *lagna* and *karaṇa* is the most important for marriage. We are further told that in this matter various customs pravailed in different regions, and special mention is made of those in vogue in the south, Mālava, Māṇḍavya, Vaṅga, Tuṣāraka, and among the Khaśas, Hūṇas, Mālakas, Bhekṣāṇas, Gopas and the easterners (*VP*, 80-89). Evening twilight was considered especially auspicious for connubium (*VP*, 90-93). That these rules were actually followed in practice is evidenced by numerous references. The *Baudhāyana-gṛhyasūtra* (I.1.20) names Rohiṇī, Mṛgaśīrṣa, Uttaraphalgunī and Svāti as *nakṣatras*

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POLYGAMY. Though people were normally monogamous, multiplicity of wives, especially among the rich, was not unknown. Varāhamihira refers to co-wives (*sapatnī*, *VP*, 34; *sasāpatnika*, *VP*, 19) and to men with two (*dvibhārya*, *YY*, IV.55; *BY*, XVIII.16) or more wives (*bhūribhārya*, *BJ*, XVIII.18).[1] That even poor men sometimes practised polygamy would appear from the statement that the happiness of a poor man with two wives comes to an end (*YY*, IV.55).

WEDDED LIFE. Complete concord between husband and wife and perfect fusion of their personalities into one are essential for a prosperous and happy wedded life. A serious view was, therefore, taken of antagonism between them (V.97). A wife acting contrary to the interests of her husband is spoken of scornfully.[2] On the other hand, a wife agreeable to her husband's mind is said to augment the prosperity of the family (*YY*, V.31). She was expected to maintain a very high moral standard.[3]

As we have seen above, sensual pleasures and children were main objects of wedlock. Just as a twig cut off from a tree or a seed sown in the soil does not develop into a different plant, so also, it was believed, a son is nothing but the soul reborn in a woman with such minor differences as may be due to the influence of the mother who is compared to a field.[4] Manu, it would be remembered, compares a man and a woman to the seed and soil respectively (IX.33 ff.). As the foetus a woman develops is similar to the man she remembers at the

of marriage. The *Āsvalāyana Gṛ. S.* I.4.1 states that marriage should be held in northern solstice and an auspicious *nakṣatra*. According to the *Āpastamba Gṛ S.* III.3, one desirous of making his daughter dear to her husband should give her in marriage in Niṣṭyā (Svāti). The wedding of the four sons of Daśaratha is said to have taken place in Uttaraphalgunī (*Rāmāyaṇa*, I.71.24; I.72.13. For a different interpretation vide Tilaka, Śiromaṇi and Bhūsaṇa commentaries). The marriage of Ruru and Pramadvarā also took place in Uttaraphalgunī (*Mahābhārata*, Ādi, VIII. 16). Also cf. *HDS*, II, pp. 511-515.

1. Cf. *yasya pramadāḥ prabhūtāḥ*, LXXV.5.

2. विपरीताऽङ्गना भर्तुरर्थादित्यत् प्रकल्पयेत् ।
VP, 44.

3. Cf. *YY*, V. 12, 34 where a woman of loose character is mentioned with scorn.

4. भङक्त्वा काण्डं पादपस्योप्तमुर्व्यां बीजं वास्यां नान्यतामेति यद्वत् ।
एवं ह्यात्मा जायते स्त्रीषु भूयः कश्चित् तस्मिन् क्षेत्रयोगाद् विशेषः ॥
LXXIV.2.

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moment of coitus and as sexual pleasure in its entirety is not possible without winning over her mind and securing her undivided love (LXXIV.1, 4), Varāhamihira elaborates an ethical code by which this goal may be realised (LXXIV.5-10). He deprecates the employment of the *mantras* (mystic formulas) for captivating heart, medicines, spells (*kuhakas*) and similar other remedies which seem to have been current in his time (LXXIV.5).[1]

Varāhamihira advises a man desirous of maintaining his family-reputation to guard women against female ascetics, Buddhist and Brāhmaṇical, female slaves, nurses, unmarried girls, washer-women, garland-makers, corrupt women, female companions, she-barbers and go-betweens, for they ruin families.[2] The significance of this advice can be properly grasped in the light of Vātsyāyana's *Kāmasūtra* which regards these women as best suited for employment as go-betweens in intrigues with others' wives (I.5.37-39; III.3.9, 38; V.4.42-62).[3] Women were also to be guarded against nocturnal movement, vigil, pretension of illness, living in others' house, diviners, congregational mournings and festivals, for these are the occasions when women come into contact with men.[4]

An ideal wife went to the bed after her husband and got up earlier (LXXVII.15). She was expected to be well-behaved to her parents-in-law and others (*VP*, 30, 31, 44). The words *vyayanā*, expending much (*VP*, 36), and *āyaprāyā*, securing income (*VP*, 38), probably indicate that she was charged with the duty of regulating household expenditure. Manu (IX.11) asks the husband to employ his wife in receiving and spending

1. Utpala adds special food, drinks, etc.

2. भिक्षुणिका प्रव्रजिता दासी धात्री कुमारिका रजिका ।
मालाकारी दुष्टाङ्गना सखी नापिती दूत्यः ॥
कुलजनविनाशहेतुर्दूत्यो यस्मादतः प्रयत्नेन ।
ताभ्यः स्त्रियोऽभिरक्ष्या वंशयशोमानवृद्ध्यर्थम् ॥ LXXVII.9-10.

3. Cf. Śaṅkha cited by Vijñāneśvara on *Yājñavalkya*, I.87 and by Aparārka on *Yājñavalkya* I.83. *HDS*, II, p. 564, fn. 1311. cf. *Arthaśāstra*, I.10.7-8; I.20.18; V.1.19, 50; V. 2.52; *Padma-prābhṛtaka* (*Caturbhāṇī* edited by Motichandra), pp. 29-30, 32 ff.; *Ubhayābhisārikā* (*ibid*), pp. 129-33.

4. रात्रीविहारजागररोगव्यपदेशपरगृहेक्षणिकाः ।
व्यसनोत्सवाश्च सङ्केतहेतवस्तेषु रक्ष्याश्च ॥ LXXVII.11.
Cf. *Kāmasūtra* IV.4.41; V.2.6.

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wealth. Vātsyāyana requires an ideal wife to calculate annual income and regulate expenditure in proportion to the same (IV.1.32-3).

SUTTEE. Varāhamihira alludes to the practice of the self-immolation of the wife on the funeral pyre of her husband, popularly called *suttee*, in the following words: 'Man does not keep his flattering words uttered in privacy to women afterwards while women enter fire embracing their dead husbands.'[1] It is noticed by Vātsyāyana[2] and Kālidāsa,[3] but vehemently condemned by Bāṇa.[4] The Eran posthumous inscr. of Goparāja (A.D. 510-11) informs us that when he died in a battle his wife accompanied him on the funeral pyre.[5] The widowed wife of Dharmadeva, king of Nepal, was keen upon following her dead husband, but was refrained from doing so by her son Mānadeva.[6]

DESERTION. We read of women deserted by their husbands (*BJ*, XXIV.8, 9). Our author tells us that in order to absolve himself of the sin of transgressing his faultless wife, a man should wear for six months the hide of an ass with hair exposed and beg for subsistence saying, 'give alms to the transgressor of his wife.'[7] It follows the *Āpastamba-dharmasūtra* which adds that the transgressor should beg at seven houses.[8] Varāhamihira says that according to the *śāstra* men

1. पुरुषश्चटुलानि कामिनीनां कुरुते यानि रहो न तानि पश्चात् ।
सुकृतज्ञतयाङ्गना गतासूनवगूह्य प्रविशन्ति सप्तजिह्वम् ॥
LXXIII.16.

Cf. शुक्रनीति IV.4.29.

2. H. Chakladar, *Social Life in Ancient India*, pp. 129-130.

3. *Kumāra-Sambhava*, IV.21-2, 33-6, 45.

4. *Yad=etad=anumaraṇam nāma tad=atiniṣphalam*, *Kādambarī*, Pūrvabhāga. In *Harṣacarita* (V) we see Yaśomatī burning herself before her husband's death because she wanted to die as unwidowed.

5. *CII*, III, p. 93, l.7.

6. *IA*, IX (1880), p. 164, l.7; pp. 165-6, verse 8.

7. बहिर्लोम्ना तु षण्मासान् वेष्टितः खरचर्मणा ।
दारातिक्रमणे भिक्षां देहीत्युक्त्वा विशुध्यति ॥ LXXIII.13.

The reading in the printed editions is *dārātikramaṇe*, which it is proposed to change into *dārātikramiṇe* for the sake of better meaning. It would then also accord with the *Āpastamba-dharmasūtra* passage (quoted below) on which our verse is based.

8. दारव्यतिक्रमी खराजिनं बहिर्लोम परिधाय=दारव्यतिक्रमिणे भिक्षामिति सप्तागाराणि चरेत्, सा वृत्तिः षण्मासान्
Āpastamba-dharmasūtra, I.28.19.

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and women are equally sinful in transgressing each other, but men pay no heed to it (LXXIII.12).

WIDOW-REMARRIAGE. There are numerous references to widows.[1] At one place we hear of a lady widowed in her childhood (*bālye vidhavā*, *BJ*, XXIV.8). Widow-remarriage, though severely condemned by Brāhmaṇical writers,[2] seems to have sometimes taken place. Our author refers to remarried women (*punarbhū*,[3] XXXI.3; *BJ*, XXIV.4, 9) and to their sons (*BJ*, XIV.2).

GENERAL REMARKS. The daughter was not so much coveted as the son. A woman giving birth to daughters alone was looked down upon.[4] Some literary training appears to have been provided to girls in cultured families. Some of them went for higher education as well. Varāhamihira alludes to a *brahmavādinī* woman well-known for her proficiency in all the sciences (*BJ*, XXIV.15). According to religious literature, *brahmavādinīs* were life-long students like *naiṣṭhika* Brahmacārins.[5] Uncharitable and unmerited remarks against womanhood were not wanting. Varāhamihira raises his solitary voice against such allegations. He openly says that women are the veritable goddesses of fortune and should always be honoured and given wealth, that all the faults which women are accused of are also committed by men but the latter in their audacity treat women with scorn though they are superior to men in virtues, that whether she be wife or mother, the origin of men depends on women, and that the lustful craving of man does not subside even when he is centenarian and he keeps away from it only due to incapacity, while women do so by courage and patience (LXXIII.4, 6, 11, 14).

1. LXXXV.79; *VP*, 33, 49, 59, etc.

2. e.g., *Manu*, V.162; VIII.226; IX.47, 65.

3. *Punarbhū* is variously defined in different works. Utpala takes it to mean a remarried woman whose first marriage was not consummated : *akṣata-yonitvād=yā punar= ūhyate sā punarbhūḥ* (on XXXI.3). Vātsyayana, who does not contemplate a second marriage for women, defines *punarbhū* as a widow, who being of weak character and unable to control her desires, associates herself with a man seeking pleasure and desirable on account of his excellent qualities (IV.2.39).

4. LII.70; *VP*, 34, 69.

5. The whole of the chapter LXXIII styled Strī-praśaṁsādhyāya contains interesting remarks on womanhood.

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III

FOOD AND DRINKS

BHAKṢYA AND ANNA. The employment side by side of the words *bhakṣya* and *anna* (XLVII.28) tends to show that these terms stood for different kinds of food. Utpala mentions *modaka, lopikā* and *apūpa* as examples of *bhakṣya*, and *odana* and *pāyasa* as those of *anna*. It appears from this that they denote solid edibles and food in general respectively.[1]

FOOD GRAINS. Rice with its numerous varieties like *śāli, ṣaṣṭika, yavaka, kalamaśāli, sūkaraka, pāṇḍūka, raktaśāli, gauraśāli* and *niṣpāva*, barley and wheat formed the staple food of the people. Pulses formed, as now, one of the principal ingredients of diet, mention being made of beans, kidney beans, grams, *Ervum Hersutum, Dolichos uniflorus* and peas. Sesamum, mustard and linseed yielded various kinds of oil[2] which must have been used for seasoning and frying. Sesamum, as we shall presently see, was also used as an important ingredient in certain preparations.[3]

SPICES. Spices must have been used in preparing food. Mention is made of ordinary salt (*lavaṇa*),[4] rock-salt (*saindhava*),[5] long pepper (*pippalī*), black pepper (*marica*), ginger (*śuṇṭhi*), small cardamoms (*sūkṣmailā*), cumin seeds (*jīraka*) and nutmeg (*jāti-phala*).[6] There is a reference to small cardamoms, averrhoas (*lavalī*) and cloves (*lavaṅga*) growing in the south-west on sea-shore (XXVII.5).[7] The fact that excessively sour, bitter, salty and pungent food is harmful to eyesight, sperm and manhood is recorded in LXXV.12.

1. Pāṇini makes similar distinction, vide V.S. Agrawala, *India as Known to Pāṇini*, p. 101.
2. XV.9; XVI.19; XL.8; XLI.5.
3. For detailed account of foodgrains see *infra* Ch. V, Section 1.
4. X.8; XV.9, 25; XVI.7; XXVIII.4; XL.6; LIII.122; LXXV.11, etc.
5. XVI.24; L.32.
6. L.15; LXXVI.32, 33.
7. According to Utpala, the chapter containing this verse is spurious.

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MILK PRODUCTS. Milk[1] and its products played a dominant part in ordinary diet. Milk was highly valued for its vigour-imparting properties (LXXV.4, 6, 7, 8). In addition to cow-milk,[2] goats' milk was also consumed (LXXV.9). Sometimes sugar was added to give it sweet flavour (LXXV.5). Among milk products, we have references to (1) *dadhi* or curd,[3] that prepared from cow's milk being especially mentioned (*YY*, VII.16); (2) *takra* (LIII.114; LXXV.11), butter-milk mixed with one-fourth[4] or half water[5]; (3) *mathita* (XLIX.26), butter-milk without water[6]; (4) *navanīta* (LXXX.4), fresh butter extracted from curds after churning[7]; (5) *ghṛta*,[8] *ājya*,[9] *haviṣ*[10] or *sarpis*,[11] clarified butter churned from curds, used as frying material (LXXV. 9) and not infrequently employed for seasoning rice (LXXV.8) and other items of food (XCIV. 24; CIV.8); and (6) *payaḥsarpis* (LXXV.4), butter derived from fresh milk[12]; it was used for frying and is the same as Pāṇini's *phāṇṭa*[13] and the *kṣīrottha navanīta* of *Suśruta* (Sūtrasthāna, XLV.93).

1. L.31; LIV. 7; CIV. 8; XVII. 23; XXXIV, 4, etc.
2. Cf. XIX.5; XXXII.29. XLIV.7; XLV.6;
3. IX.45; XXX.18; XLII.60; XLIV.6; XLVII.35; LVIII.8; LXXVIII.7. LXXX. 5; LXXXVI.14; XCII.8; LXXXV.45; XCIV.22.
4. *Amara*, II.9.53; *Takraṁ pāda-jalaṁ proktam*, *Caraka*, Vol. VI, p. 337.
5. *Suśruta*, Sutrasthana, XLV.85. According to Hemādri, the commentator of the *Aṣṭāṅgasaṅgraha*, *takra* denotes churned curds :—*mathitam dadhi takram*, *Caraka*, Vol. VI, p. 345.
6. *Suśruta*, Sūtrasthāna, XLV.86; *Amara*, II.9.53.
7. *Amara*, II.9.52.
8. V.60; XVI.19; XLI.5; XLIX.21; LIII.108; LIV.7; LXXV.9; XCVI.10, etc.
9. XLVII.32; L. 37; LVIII.12; LXXV.6; etc.
10. XLIX.23.
11. XLVII.50; LXXV.8. Great sanctity was attached to ghee and it was used in ceremonial bath—

आज्यं तेजः समुद्दिष्टमाज्यं पापहरं परम् ।
आज्यं सुराणामाहार आज्ये लोकाः प्रतिष्ठिताः ॥
भौमान्तरिक्षं दिव्यं वा यत्ते कल्मषमागतम् ।
सर्वं तदाज्यसंस्पर्शात् प्रणाशमुपगच्छतु ॥ XLVII.52-3.

12. Cf. क्षीरमेव निर्मथ्य यद् घृतमुत्पाद्यते तत् पयोघृतम्
Utpala on LXXV.4.
13. V. S. Agrawala, *India as Known to Pāṇini*, p. 109.

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SWEETS. Varāhamihira refers to the following sweets:—

1. *Madhu*[1], honey. Its tawny hue (LXVII.64; LXXI.4; XXVIII.11) and odour (LXVII.15) are alluded to. We come across the words *kṣaudra* (XLII.60; LIII.108; LIV.7; LXXV.6) and *mākṣika* (XV.9), which, according to *Suśruta* (Sūtrasthāna, XLV.133), denote two of the eight varieties of honey. Honey produced by smaller bees was known as *kṣaudra* while that derived from large bees was called *mākṣika*.[2]

2. *Guḍa*[2a], molasses, an important article of food extensively used in preparing various dishes (XCIV.20; CIV.8).

3. *Phāṇita* (XLI.5), the inspissated juice of sugarcane boiled down to thick consistency (*rāb* in Hindi). It was regarded as an inferior variety of molasses.[3]

4. *Śarkarā* (LXXV.5), granulated sugar, its white colour being suggested by its other name *sitā* (LXXV.6; LXXVI.11).

Trimadhura (XLVII.31), as suggested by the word, denotes the three sweets, clarified buttter, honey and sugar.[4]

FOOD PREPARATIONS. A list of food preparations noticed by our author is appended below.

1. *Odana* (XLVII.30; LVIII.8; *YY*, VI.12, 18), boiled rice prepared from the above-mentioned varieties of rice, special mention being made of that prepared from *śāli* (L.30) and *ṣaṣṭika* (L.30; LXXV.8; XCIV.20; *YY*, VII.17; *BY*, XVIII.9-10). Sometimes it was prepared in combination with meat (*māṁsaudana*, XLVII.30; *BY*, XVIII.23-4). *Tilaudana* (*YY*, V.14; VI.8; VII.17, 21) was a dish of milk, rice and sesamum.[5] *Odana* was also taken in combination with other ingredients like fish (*YY*, V.14), curds (*dadhi-bhakta*, XCIV.51; *dadhy*—

1. V.60; XLI.5; XLIII.11; XLV.27; L.37; LVIII.12; LXXV.3; LXXVI.11, 27, 32.

2. Cf. Ḍalhaṇa's commentary on *Suśruta*, I.XLV.133.

2a. X.8; XVI.13; XL.4; XLII.38; LXXXVIII.1.

3. Cf. Utpala—*ikṣu-rasa-kvāthaḥ kṣudra-guḍādiḥ*; *Cakrapāṇidatta—guḍasya tantulībhāvād bhavati, kṣudraguḍibhūta ikṣurasaḥ.*

4. Cf. Utpala on XLVII.31.

5. Monnier-Williams, *Sanskrit-English Dictionary*, p. 375.

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odana, *VP*, 13)[1], milk (*kṣīraudana*, *YY*, VI.5), and molasses (*BY*, XVIII.9-10), and ghee was used for seasoning it (LXXV. 8). As at present, *odana* was commonly eaten with soups of various pulses, e.g. black gram (LXXV.8).

2. *Modaka* (LVIII.8; LXXXVIII.1). Utpala renders it by the word *laḍḍuka* from which its modern name *laḍḍū* is derived. In northern India, *laḍḍū* and *modaka* are even now used as synonyms, denoting a ball-shaped preparation made from the flour of rice, wheat, barley or grams fried in clarified butter, mixed with molasses or sugar, and finally done into round balls. According to Dalhaṇa (on *Suśruta*, Sūtrasthāna, XLIV.12-3), wheat-flour mixed with ghee was steamed in a pot, then thrown into a decoction of sugar, and finally shaped like *modakas*. In Maharashtra, however, *laḍḍū* and *modaka* preparations are distinguished from each other. The latter is a stuffed preparation shaped like a fig. Small *chapātīs* of rice flour are stuffed with a mixture of molasses or sugar and cocoa-nut dessications and then fried in *ghee*. On some occasions like Nāga-Pañcamī or Poḷā, the preparation is invariably steamed and eaten.

3. *Palala* (LVIII.8; XCIV.22; *YY*, VI.19). It is a sweetmeat prepared from pounded sesamum and *gur* or sugar, now called *tilkuṭ*. Utpala takes it to mean semi-pounded sesamum.[2] At present, it is especially eaten on the Makara Saṅkrānti day.

4. *Pāyasa*,[3] *Paramānna*.[4] Its modern equivalent is *khīra*, which is prepared by boiling rice in milk with sugar. Sometimes *ghee* was added to it (XLV.32; XLVII.36). This practice is even now current in western U.P. It was one of the most favourite dishes as would appear from frequent references made to it. Utpala gives *kṣīriṇī* as another name for *pāyasa* (on XLV.32).

5. *Pūpa* (XLII.38). It is a sweet cake or bread made of wheat-flour, sugar or *gur*, and fried in clarified butter, popu-

1. Also cf. *YY*, VI.18.
2. *Palalamardha=niṣpīḍitās=tilāḥ*, Utpala on LVIII.8.
3. XLII.38; XLIII.11; XLV.32; XLVII.36; *YY*, VI.19; *BY*, XV.2.
4. XII.16; XLV.64; LVIII.8; XCIV.23.

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larly known as *puā*. In Utpala's time, it was prepared from green gram or rice.[1]

6. *Yavāgū* (L.31), gruel of any kind, especially of barley. Its modern equivalents are *lapsī* and *rābrī*. *Yavāgū* of sesamum and beans is referred to in *Caraka* (Cikitsāsthāna, XXXVI.155).

7. *Yāvaka* (XLIII.11; *YY*, VI.19; *BY*, IV.23-7). Utpala[2] takes it to be identical with *yavāgū*. Kern understands it as a kind of barley cake. It does not seem to be correct in view of Patañjali's statement that *yāvaka* was prepared by pounding barley with pestle and mortar for removing the chaff, and then boiling it in milk or water with sugar.[3] According to Kauṭilya (II.15), *yāvaka* weighs two times the quantity of barley. Caraka regards it as a *svinnabhakṣya*, i.e. steamed food (Sūtrasthāna, XXVII.261).

8. *Śaktu* (XLV.63), groats made by grinding fried barley grains. It corresponds to *sattū* which is taken after doughing with water and seasoning with sugar, molasses, or salt. *Caraka* (Sūtrasthāna, XXVII. 264) refers to *saktu* made of *śāli* and regards it as sweet, light, cooling and curative in certain diseases. *Saktu* doughed with water was called *apsaktu*.[4] We have also references to the combination of beans with *saktu*.[5]

9. *Śaṣkulikā* (LXXV.9). Cakrapāṇidatta, the commentator of *Caraka*, tells us that *śaṣkulis* were made of the flour of *śāli* mixed with sesamum seeds, and fried in oil.[6] It is prepared exactly like this today in Karnatak. Ḍalhaṇa gives *śākulī* as its popular name.[7] A medicinal *śaṣkulikā* described by our author will be mentioned in the next section.

10. *Ullopikā* (LVIII.8).[8] It is described as a *bhakṣya* or solid eatable. It may be the same as *lopikā* mentioned by Utpala (on XLVII.28).

1. *Pūpo mudga-kṛto miśrito vā taṇḍulena saha*, Utpala on XLII.38.
2. On L.31.
3. Agrawala, *India as Known to Pāṇini*, p. 106.
4. *BY*, IV.24-7. Cf. *YY*, VII.18.
5. *YY*, VII.19; *BY*, IV.24-7.
6. *Caraka*, Vol. VI, p. 342.
7. *Ibid.*
8. Kern (*JRAS*, 1873, p. 328, fn. 2) vaguely takes it to be 'a sort of sweet-meat'.

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11. *Sūpa* (LXXV.8), soup of various pulses, that of beans being referred to. It was eaten with *odana* and other items of staple diet in order to improve their taste.

FRUITS AND VEGETABLES. Our work abounds in references to fruit-bearing trees and creepers like *āmalaka*, *lodhra*, *śṛṅgāṭaka*, *bilva*, *āmrātaka*, mango (*āmra*, *sahakāra*), *kadalī*, *kapittha*, *bījapūra*, *dāḍima*, *drākṣā*, *jambū*, *kṣīrikā*, *nālikera*, *pīlu*, *panasa*, *kharjūra* and *tintiḍī*, fruits whereof must have been extensively eaten.[1] From their inclusion in the list of tradeable commodities (XLI.9), bulbs and roots (*kanda*,[2] *mūla*[3]) appear to have been in great demand. As to vegetables, our author says that consuming leafy vegetables or saline pot-herbs in excess (*kṣāra-śāka-bahulāni*, LXXV.12) causes loss of eye-sight and manhood.[4]

MEAT-DIET. Meat-eating was quite common in those days.[5] A large number of slaughterers (*saunika*), fishermen (*matsyabandha*, *kaivarta*, *dhīvara*), fowlers (*śākunika*, *śākunī*) and hunters (*vyādha*), to be referred to in the next chapter, supplied various kinds of meat. Among the animals whose flesh was consumed, mention is made of elephants, buffaloes, sheep, boars, cows or bulls, hares, deer, lizards and fish (L.34-5).[6] Birds' flesh was also eaten (L.33). Varāhamihira especially recommends to a monarch the ceremonial eating of the fish, the flesh of buffalo, bull, he-cat, goat, deer, five animals beginning with *aśvin*, and of birds like *śaṅkara* and others (*YY*, V.14; VII.16-8, 19, 21). An allusion is made to the aquatic animals whose flesh was allowed to be taken (*BY*, VIII.1). However, persons initiated into a sacrifice were to refrain from taking meat (*YY*, IX. 15, 16).

WINE.[7] Like meat-eating, wine-drinking was also pre-

1. For references see *infra* Ch. V, Section I.
2. XV.7; XL.4; XLI.12.
3. XL.7; XL.6; XLI.12; V.77; VIII.19; IX.35; XIII.11; XV.17; XLVII.28.
4. For the meaning of *kṣāra-śāka* see Utpala on LXXV.12.
5. Cf. XV.2; LXXXVI.10; XCIV.22.
6. Cf. XVI.34, where eaters of the flesh of a jackal (*gomāyu-bhakṣa*) are mentioned. A preparation of blood called *rudhira-vilāpana-pāyasa* is mentioned in *YY*, VII.17.
7. *Rasa* X.8. *madya* XVI.13; XLVII.30; LVIII.8; LXXV.11; *YY*. II.4; *madhu* XIX.19; LXXV.2. *mādhvīka* L.5. *āsava* XLVII.28; XCIV.22; *BY*, XV.2; *VP*,13. *madirā YY*, V.12. According to Kauṭilya (*Arthaśāstra*,

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valent. Numerous references to vendors of wine[1] indicate the popularity of spirituous liquors. Wine is comprised in the list of articles inspiring lust (LXXV.2). Not only men, women also did not show any compunction in taking intoxicating drinks. There is a reference to men taking wine in company of their lady-loves in the spring season (XIX.18). Inebriety was considered to impart an unusual charm to ladies, and Varāhamihira speaks of a man playing a bee on the lotus-like countenance of his intoxicated sweetheart.[2]

Wine was sometimes flavoured with lotus buds (*sotpalaṁ madhu*, LXXV.2).[3]

Varāhamihira describes vicious effects of drunkenness thus : To wine are due a number of vices; it tends to weaken men of scanty means, intelligence, strength and welfare; losing all common sense and depending on the urge of sense organs, a drunkard is unable to discriminate between what should be eaten and what not and the like; he takes mother for wife and *vice versa*, a house for a clod of clay, and a well for a house; he regards a little of water as an ocean and the latter as flat earth, and poses as befriending a king; what else there is that a drunkard would not contemplate to do' (*YY*, II.4-5). But all this was not enough to desist people from taking liquor, and, therefore, our author strikes a piece of practical advice, viz. one may drink in secret while receiving a guest, on festive occasions, or at the instance of a physician, but only so much as does not make one's common sense disappear (*ibid.*, II.7). Drinking wine was forbidden for a man performing a sacrifice or other rituals (*ibid.*, IX.15, 16).

II.25, p. 120) 100 *palas* of *kapittha* (*Feronia Elephantum*), 500 *palas* of *phāṇita*, and one *prastha* of honey constitute *āsava*. *Madhu*, according to the same authority, is the juice of grapes (*ibid*).

1. For references see *infra* Ch. V, Section 3.

2. शयनगृहासनाशनयुतस्य चानुकुरुते समदविलासिनीमुखसरोजषट्-चरणताम्, CIII.32.

Cf. *YY*, V.12, where excessive drinking by women is censured—

मदिरामुदिता मदनाकुलिता प्रमदेव कुलं परवेश्मरता.

3. For references to this practice see *Dhūrtaviṭa-saṁvāda* (*Śṛṅgārahāṭa* edited by Motichandra and V.S. Agrawala), pp. 71-72, 88, *Pādatāḍitaka*, verse 106; *Nāgānanda*, III.2; *Gāthāsaptaśatī*, 535. Vide also my paper in *JOIB*, XIV, pp. 123-124.

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We may conclude this section with a general observation on food made by Varāhamihira (*YY*, VII.22; *BY*, IV.29). We are told that the food which is tasteless, defiled by hair and flies, emits bad smell, is burnt, insufficient or apt to weaken should be avoided; on the other hand, one should take the food that is well-cooked, clean, attractive, agreeable to one's mind, and tasteful.

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IV

HEALTH, DISEASE AND MEDICINE

Our work reveals a highly developed state of medical science in India. Varāhamihira evinces acquaintance with diseases, doctors, treatment and certain principles of medical science. He refers to physicians (*vaidya*,[1] *āyuṣyajña*,[2] *bhiṣaj*[3]), horse-physicians (*turaga-bhiṣaj*)[4], surgeons (*śalyahṛt*)[5], chemists (*rasāyana-kuśala*)[6], and depoisoners (*viṣa-ghātaka*).[7] The word *śālākya*[8] denoting a kind of surgery appears in XV.12. We have references to the three humours of the body, viz. (i) wind (*vāta, vāyu, marut, anila, pavana*), (ii) bile (*pitta*), (iii) *phlegm* (*śleṣma, kapha*), their derangement, diseases proceeding therefrom, and persons suffering from them.[9] The fact that bile is greatly vitiated and becomes powerful by basking in the sun is also recorded.[10] Mention is made of the *dhātus* (primary fluids of body), their deterioration and derangement and the diseases caused by them.[11] The part played by climatic and

1. V.41; X.3; XV.26; XXXIII.11; CIII.61; *YY*, III.23.

2. XVI.17. Utpala takes it to mean experts in chemicals and erotic remedies—*āyuṣo hitam=āyuṣyaṁ rasāyana-vājīkaraṇ-ādi.*

3. V.80; VII.6; IX.32, 43; X.9, 16, 17, XV.7, 17; CIII.61, 62.

4. XLIII.13.

5. V.80.

6. XVI.19.

7. LXXXV.32.

8. Utpala takes it to mean an eye-specialist (*akṣi-roga-cikitsaka*).

9. (i) wind—IX.40 (*marud-gada*); LXXXVI.11 (*vāta-rogī*); LXXXVI. 37 (*vāyu-grasta*) ; *BY*, V.1 (*anilaja-roga*); XI.25 (*anila-jvara*); *BJ*, XXIII.13 (*saṁsṛṣṭaḥ pavanena*). For allusion to foodgrains causing wind, cf. XV.13; XVI.33.

(ii) bile—IX.43 (*pittaja-kāmala*); XIX.9 (*pittottha-ruj*); *BY*, V.2 (*pitta-ruj*); VIII.13 (*pitta...-piḍā*). Also cf. CIII.11, 18. (iii) phlegm—VIII.28 (*śleṣma-kṛta-roga*); CIII.61 (*ślaiṣmika dravya*); *BY*, V. 1 (*kaphaja roga*).

10. सौरोऽर्करश्मियोगात् सविकारो लघ्ववृद्धिरधिकतरम् ।
पित्तवदाचरति नृणां पथ्यकृतां न तु तथार्याणाम् ॥
CIII.55.

11. VII.5 (*dhātu-saṅkṣaya*); CIII.16 (*dhātu-klama*); *BJ*, XXV.1 (*dhātu-kopa*). Cf. *Ib.*, XXV.3, 8; *BY*, V.2 for death and disease due to vitiated blood.

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seasonal disorders in causing disease was recognized. Thus there are allusions to outbreaks of epidemics due to untimely rains, the irregularity of cold and heat, abnormality of seasons (XLV.38, 39), and unnatural features of the sun and the moon (III.26; IV.29). People also believed in the evil influence of planets, stars and other astrological phenomena as a cause of disease.[1] According to *Suśruta*, divine calamities and irregularities of cold, heat, wind and rain divest medicines and water of their respective properties and their use generates epidemic diseases.[2] In treatment, stress was laid on regulating diet (CIII.55).

DISEASES. Diseases are called *roga*,[3] *ruj*,[4] *āmaya*,[5] *vyādhi*,[6] *gada*[7] and *akalyatā*[8] and health is referred to as *kalya*[9] and *ārogya*.[10] *Auṣadha*[11] and *bheṣaja*[12] are the words used for medicine. Varāhamihira mentions insanity (*unmāda*), XXXII.11; *BJ*, XXIII. 13), rigor mortices (*moha*, *BJ*, XXV.12), death due to worms in a wound (*BJ*, XXV.7), indigestion (*mandāgnitā*, LXXV.10. Cf. LXXVIII.28), bleeding (*raktasrāva*, LXXXVI.35; *kṣatajasya visruti*, LXXXVII.30; *asṛg-udbhava*, CIII.13; *kṣarat-kṣataja*, CIII.16), abortion (*garbha-pāta*, LXXXVIII.5. Cf. V.79, 85; L.35, 38) and the diseases of the womb (*kukṣyāmaya*, V.51), abdomen (*udara-roga*, LXXVIII.29; CIII.10, 16;

1. All the references to diseases in this section are from astrological contexts.

२. तेषां पुनर्व्यापदोऽदृष्टकारिताः, शीतोष्णवातवर्षाणि खलु विपरीतानि ओषधीर्व्यापादयन्त्यपश्च, तासामुपयोगाद् विविधरोगप्रादुर्भावो मरको वा भवेदिति। तत्राव्यापन्नानामोषधीनां चोपभोगः।

Suśruta, Sūtrasthāna, VI. 16-8.

3. V.72; VI.2; VII.2; IX.18, 23, 43; VIII.32, 34; XI.31; 36, 48; XII.19; XXXIX.7; XXXII.18; XLII.27; XLIV.8; XLV.27, 38, 39; XLVI.5; LIX.6; LXXI.5; LXXVI.35; LXXVIII.11, 36; LXXXI.6; XCI.1; XCIV.5; C.4; CII.5.

4. V.82; XIX.9; XXXVII.13 (var.); LII.60; LXXXVIII.6; CIII.7.

5. IV.29; VII.7; VIII.42; V.51.

6. V.56; VIII.4, 17; IX.33, 44; XXIX.12; XXXIV.15; XXXV.5; XXXVII.2; XLV.25; L.14; LXXXVIII.5, 24; CII.7.

7. VIII.51; IX.40, 42; XII.17; XVI.40; XLV.60; XCIV.40.

8. LVII.50.

9. CIII.5.

10. VIII.15; XXIX.11; XLIX.22; LXXVIII.21; LXXXIV.5; LXXXVIII.10; CII.13.

11. XCIX.5; LXXV.5.

12. XV.17; XVI.5; XIX.1.

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jaṭhara-gada, CIII.6, 13), heart (*hṛd-roga*[1], CIII.44; *koṣṭha-roga*[2], CIII.5), mouth (*mukha-ruj*, V.82; *mukha-roga*, V.83; VI.4; *vadana-roga*, XXXII.18, *vaktra-roga*, *BJ*, XX.1), teeth (*rada-vaikṛtya*, *BJ*, XXIII.11. Cf. *ibid*, XXIII.15), eyes (*akṣi-gada*, IX.40; *akṣiruj*, L.11; CIII.16; *dṛg-ruja*, CIII.6; *dṛg-roga*, *BJ*, XIX.1. Cf. CIII.18; *BJ*, XXIII.10, 12, 13), head (*śiro-ruj*, LII.109), throat (*gale gadāḥ*, IX.42), private parts (*guhya-ruj*, V.86; *BJ*, XXIII.7; *guhyodbhava roga*, *ibid.*, XXV.9), i.e. piles or fistula, and of ears (*śravaṇa-vyādhi*, IX.33. Cf. *BJ*, XXIII.11, *śravaṇ opaghāta*).

SPECIFIC DISEASES. A list of diseases specifically named by our author is given below.

1. *Gala-graha* (XXXII.18), throat-spasm. According to *Caraka* (Sūtrasthāna, XVIII.22), *gala-graha* arises from the hardening of phlegm in throat.

2. *Śvayathu* (XXXII.10), swelling of the skin, edema. It may be of three or two varieties according as it is caused by the three humours of the body or by endogenous and exogenous factors (*Caraka*, Sūtrasthāna, XVIII.3).

3. *Prameha* (LXVII.7), diabetes, morbid secretion of urine. The possibility of a man with very tender sex organ falling a victim of diabetes leading to his death is indicated.

4. *Chardi* (XXXII.18), vomitting. It is of five kinds according as it results from contact with repulsive objects, excess of wind, bile or phlegm, and tridiscordance (*Caraka*, Sūtrasthāna, XIX).

5. *Kāsa* (IX.44; XXXII.10), cough. Cough accompanied by the shaking of jaws is alluded to (*hanūkampayutaś=ca kāsaḥ*, VIII.48).

6. *Śvāsa* (VIII.48; IX.44; XXXII.10; *BJ*, XXIII.8), dyspnoea.

7. *Kṣaya* (VIII.49; *BJ*, XXIII.8.17), consumption.

8. *Śoṣa* (*BJ*. XXIII.8), pthisis. Death resulting from *śoṣa* is referred to in *BJ*, XXV.3.

9. *Pāṇḍu-roga* (XXXII.14), anemia or jaundice.

10. *Kāmala* (IX.43). It is a kind of jaundice marked by

1. It is mentioned in the *Ṛgveda*. In the medical Saṁhitās, it probably denotes *angina pectoris*, cf. *Vedic Index*, II, p. 507. It may be the same as *Hṛd-yota* of the *Atharvaveda*.

2. It may also denote abdominal affections.

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'intensive yellow colour of the skin, eyes, nails, urine and faeces and particularly of the face, with exhaustion, weakness, thirst, heat, indigestion, dispise of food and dullness of senses.'[1]

11. *Kuṣṭha* (*BJ*, XXIII.9), leprosy.

12. *Śvitra* (*BJ*, XXIII.7), white leprosy.

13. *Vicarcikā* (XXXII.14), itching, dark, severely wet spots or boils.[2] Utpala takes it to be a skin-disease of the foot (*vicarcikā roga-viśeṣaḥ pādajas=tvag=vikāraḥ*).

14. *Dadrū* (XXXII.14). Itching, red, elevated spots.[3]

15. *Visarpikā* (XXXIV.14). St. Anthony's fire, erysipelas, carbuncles and other abscesses.[4] Utpala explains it as a deformation of limbs (*aṅga-vikāra*).

16. *Vidradhi* (*BJ*, XXIII.8), abscesses and inflammations. It is of two kinds, internal and external, the latter appearing in the skin, muscle and flesh (*Caraka*, Sūtrasthāna, XVII.90). It is so called because of its briskly supperating characteristics (*ibid*, verse 95). The internal *vidradhi* occurs in the heart, the pharynx, liver, spleen, stomach, kidneys, umbilical region, groins and bladder (*ibid.*, para 101.)

17. *Gulma* (*BJ*, XXIII.8), 'a round growthlike swelling hardness in the intestines between the heart and the navel.'[5]

18. *Khalati* (*BJ*, XXIII.15), baldness.

19. *Apasmāra* (LII.76; *BJ*, XXIII.17), epilepsy.

20. *Visūcikā* (LXXXVI.44), 'cholera in its sporadic form.' Utpala understands it as pricking pain in stomach (*udara-śūla*).

21. *Atīsāra* (XXXII.18), dysentry.

22. *Jalodara* (*BJ*, XXV.3), dropsy originating from untimely drinking of water.

23. *Jvara* (XXXII.10, 14; XCIV.35; CIII.13), fever. There is reference to a serious kind of fever causing death (*BJ*, XXV.1). The fever caused by provoked bile is mentioned in *BY*, XI.25 (cf. *Caraka*, Nidānasthāna, I.17-21).

24. *Plīhaka* (*BJ*, XXIII.8), splenic disorders.

25. *Niśāndhatā* (*BJ*, XX.1), night-blindedness, one suffering from which is referred to as *niśāndha*.

1. Jolly, *Indian Medicine*, p. 128.
2. *Ibid.*, p. 143.
3. *Ibid.*
4. *Ibid.*, pp. 147-8.
5. *Ibid.*, p. 117.

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We have numerous references to outbreaks of pestilential diseases (*maraka*[1], *māra*,[2] *mārī*[3]).

EROTIC REMEDIES (KĀNDARPIKA). Chapter 75 of the *Bṛhatsaṁhitā* entitled Kāndarpikam dilates upon erotic remedies.[4] It is noteworthy that practically all medical Saṁhitās contain special chapters dealing with this topic.[5] The need of such remedies arises chiefly from Indians' impatient anxiety for male progeny and partly from the practice of polygamy (LXXV.1, 5). Varāhamihira specifies the object of this chapter himself. 'If at the time of coitus woman's blood is in excess of male sperm, a female is born, if *vice versa*, the result is a male child; when both the blood and sperm are equal, an hermaphrodite is born. Hence a man should take recipes enhancing his sperm (LXXV.1).[6] We get the following ten prescriptions.

1. Tablets made of a mixture in equal proportions of the mineral compound known as *mākṣika-dhātu*, mercury (*pārada*), iron-dust, yellow myrobalan (*harītaka*) and bitumen (*śilājatu*), and then doughed with clarified butter and honey and finally done into globules (*gulikā*), to be taken for twenty-one days (LXXV.3).

2. Milk boiled with *kapikacchu* roots. (Cf. Vātsyāyana, VII.1.38).

3. Taking six morsels of beans cooked in clarified butter churned from milk (*payaḥsarpis*), followed by a drink of milk (LXXV.4).

4. The powder of *vidārikā* boiled in its own sap and then dried up in the sun seven times, to be taken with boiled milk sweetened with sugar. This prescription is meant for a man with many wives (LXXV.5). Suśruta also recommends the use of the powder of *vidārikā* boiled in its own sap with clarified butter and honey for a polygamist (IV.26.23).

5. Taking the powder of myrobalan, boiled in its own juice, and mixed with honey, sugar and clarified butter, followed

1. V.27; XI.12, 29, 30, 31; XII.21; XXXV.4; XLV.79; LXXVIII.24.
2. III.31.
3. LXXXVI.33.
4. These remedies were also known as *vṛṣya* (CIII.63) and *vājikaraṇa*.
5. e.g. *Suśruta*, IV.26; *Caraka*, Cikitsā, Ch. ii. Cf. *Kāmasūtra*, VII.1.
6. *Manu*, III.219.

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by milk according to one's digestion (LXXV.6). It follows *Suśruta*, IV.26.24.

6. Eating sesamum grains boiled seven times in milk with goat's testicles, and then dried up, followed by drinking milk (LXXV.7 and comm. Cf. *Suśruta*, IV.26.18, 20). The *Kāmasūtra* (VII.1.37) also recommends milk boiled with goat's or sheep's testicles and seasoned with sugar for regaining potency and vigour.

7. An evening meal consisting of boiled *ṣaṣṭika* rice taken with clarified butter and black gram soup, and drinking milk thereafter (LXXV.8).

8. Cakes (*śaṣkulikā*) made of a compound of sesamum seeds, roots of *aśvagandhā* and *kapikacchu*, *vidārikā*, and the flour of *ṣaṣṭika* rice, ground in goat's milk, and fried in clarified butter (LXXV.9 and comm.).

9. Drinking milk boiled with *gokṣuraka* (LXXV.10. Cf. *Suśruta*, IV.26. 33, 35).

10. Eating *vidārikā* root boiled in milk (LXXV.10. Cf. *Suśruta*, IV.26. 28; *Kāmasūtra*, VII.1.38).

POWDER FOR INDIGESTION. A powder prepared from *ajamoda*, salt, yellow myrobalan, ginger and long pepper (all in equal quantities), taken with wine, butter-milk, *tarala* (?)[1] or hot water, is said to promote digestion (LXXV.11).

MENSTRUATION AND CONCEPTION. Last eight verses of the Puṁ-strī-samprayogdāhyāya (LXXVII.19-26) of the *Bṛhatsaṁhitā* embody some of the then ideas regarding menstruation and pregnancy.

A woman is advised to eschew bath, wearing garlands, and anointing the body on the first three days of menses after which on the fourth day she should bathe with water purified and perfumed with various herbs (LXXVII.21-2).[2]

The menstrual blood that resembles hare's blood or lacdye, and fades away at washing is pure; the same, when free from noise and pain and ceasing to flow after three days, undoubtedly developes into a foetus if united with a man (LXXVII.19-20).[3]

Varāhamihira refers to a sixteen-day-period suitable for

1. *Kañjī* according to some.

2. For a list of these herbs see XLVII.39-42. Cf. *Caraka*, IV.8.5. *Suśruta*, III.2.25.

3. Cf. *Suśruta*, III.2.3-17.

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conception (*ṛtu*) out of which the first three nights were to be avoided for sexual union (LXXVII.26). According to some medical writers, on the other hand, this period consists of twelve nights from the commencement of menses, the first three nights being unfit for coitus.[1] As the sixteen-day-period is known to the early Smṛtis like *Manu* (III.46) and *Yājñavalkya* (I.79) also, Jolly rightly holds it to be original.[2]

It was believed that a male or female child would be born according as the impregnation takes place on even or odd nights.[3] Moreover, a conception taking place on distant even nights was believed to result in the birth of a long-living, handsome and happy son (LXXVII.23).[4]

The situation of the foetus in a particular place in the womb was taken to be indicative of the sex of the child to be born. Thus the child would be a male, female or eunuch according as the foetus stands in the right, left or middle of the womb. Twins would be born if it is situated on both sides (LXXVII.24).[5] The birth of two, three, four or more children at a time, and a delivery long before or after the usual period were regarded as abnormal and taken to forebode evil (XLV.51, 53). Varāhamihira further says that during the period fit for conception, a man should refrain from marking his wife's body with his nails or teeth (LXXVII.26).

1. *Suśruta*, III.2.28-30; *Aṣṭāṅga-hṛdaya*, II.1.27 f.
2. *Indian Medicine*, p. 74.
3. Cf. *Manu*, III.48.
4. For astrological factors favouring the birth of a son, see LXXVII. 25; *BJ*, IX.11.
5. Cf. *Caraka*, IV.2, 28 f.

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V

DRESS AND ORNAMENTS

I. *Dress*

TEXTILES. Next to food, clothing is the most urgent necessity of life. Garments made of various kinds of fabrics were in use, the following of which are mentioned :—

(i) *Kārpāsika* (XLVII.72; XCIV.15), cotton cloth.

(ii) *Aurṇika* (XVI.29; LXXXVI.12; CIII.12, 61; *BY*, XVIII.9-10), cloth made from wool. *Āvika* (XL.2, 6; L.19) is the wool derived from sheep's hair. *Kutupa* was a cloth made from goat's wool (XL.2).[1] Among woollen articles, blankets (*kambala*) are frequently referred to (XLI.8; XLVII.50, 54).

(iii) *Kṣauma* (XXVI.6; XLVII.50; LIII.108; CIII.61)[2], linen cloth made from the yarn of flax (*kṣumā*). In the days of Kauṭilya, Kāśī and Puṇḍra were famous for *kṣauma*.[3] From its inclusion in the long list of articles presented to Harṣavardhana by Bhāskaravarman, the king of Kāmarūpa, *kṣauma* appears to have been manufactured in Assam also.[4]

(iv) *Dukūla* (LXXII.1; *BY*, XVI.1), cloth made from the fibres of the *dukūla* plant.[5] According to Kauṭilya, Vaṅga, Puṇḍra and Suvarṇakuḍya were renowned for different classes of *dukūla* : Vaṅga produced white soft *dukūla*; Puṇḍra was known for its blue smooth variety, while Suvarṇakuḍya yielded reddish sort.[6]

1. *Chāga-loma-tantu-kṛtaṁ vastram*, Utpala on XL.2. *Kullūka* (on *Manu*, V.120) explains *kūtapa* as *Nepala-kambala*.

2. Also cf. *BY*, XVII.8.

3. *Arthaśāstra*, II.11, p. 80.

4. *Harṣacarita*, VII; V. S. Agrawala, *Harṣa-carita, A Cultural Study*, p. 168; *NPP*, LVII, No. 4, pp. 311-12.

5. According to the *Niśītha Cūrṇi*, however, *dukūla* cloths were made from the cotton produced in Gauḍa. Cf. J.C. Jain, *Life in Ancient India as Depicted in the Jaina Canons*, p. 128, fn. 71. As for the etymology of the word *dukūla*, V.S. Agrawala (*NPP*, LVII, No. 4, p. 313) suggests that the word *kūla* in primitive language probably signified cloth and as it came to the market in two folds it was called *dukūla*

6. *Arthaśāstra*, II. 11, p. 80. *Amarakoṣa* II. 6. 113, however, takes *kṣauma* and *dukūla* to be synonymous.

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(v) *Kauśeya* (XVI.29; CIII.61 v.l.), a kind of silken cloth produced from the cocoon of silk-worms.[1] Utpala[2] takes it to be identical with *netra-paṭṭa*[3] which is probably another variety. Mention is also made of *paṭṭa* (*pāṭ* in Hindi), another kind of silk (XVI.29; LXXXVI.19). It was also used for writing (LXXXV.76). *Aṁśuka* (L.14, 17; LV.6) is usually considered to be muslin, but in reality, it is a sort of silk as will appear from its inclusion among the five varieties of *kīṭaja* cloth mentioned in the *Anuyoga-dvāra-sūtra* (37).[4]

(vi) *Patrorṇa* (XVI.29), a costly washed silken cloth according to the *Amarakoṣa* (II.6.113). Kauṭilya mentions *patrorṇa* manufactured in Magadha, Puṇḍra and Suvarṇakuḍya and regards the *naga*, *lakuca*, *vakula* and banyan trees as its sources.[5] According to Kṣīrasvāmin, the commentator of the *Amarakoṣa*, *patrorṇa* is made from the yarn of worms' saliva in the leaves of *lakuca*, banyan, etc.[6]

Apart from the cloths mentioned above, barks of trees (*valkala*, L.14; *cīra*, LXXXVIII.1) were also worn.

DRESS. Men's dress comprised a pair of clothes (*vastra-yuga*, XLVII.72), viz. *uttarīya* or upper garment and *antarīya* or lower garment, the former of which is mentioned (LXX.10). *Uttarīya* was a kind of upper scarf thrown round shoulders. It was incumbent upon a man to wear it especially while observing a religious rite (*BY*, XV.3), as is even now the case. The sleeping gown consisted of one piece only. It is laid down that the king should be clad in a single garment (*ekavastra*) while going to bed in order to ascertain good or bad omens from dreams (*BY*, XVI.7). The lower garment corresponding to *dhotī* was held in position by a *mekhalā* or girdle tied

1. According to the commentary on the *Arthaśāstra*, *kauśeya* was the cloth made from the silk produced in the Kośakāra country. And as according to McCrindle, raw silk was manufactured at Kos, Dr. Motichandra suggests that *Kauśeya* refers to the town of Kos and not to the cocoons. See Motichandra, *Prācīna Bhāetīya Veśa-bhūṣā*, p. 56; *BV*, I, No. 1, p. 46 f.

2. On XVI.29.

3. According to the commentator of the *Anuyogadvāra-sūtra*, *paṭṭa* cloth was produced 'from the insects that gathered round the flesh stored for the purpose in the jungle'. Cf. J.C. Jain, *op. cit.*, p. 129, fn. 72.

4. *Ibid.*

5. *Arthaśāstra*. pp. 80-81.

6. लकुचवटादिपत्रेषु कृमिलालोर्णाकृतं पत्रोर्णम् ।

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over it round the waist (LV.6)[1] Mention is also made of *uṣṇīṣa* or turban. It was especially worn on ceremonious occasions. Thus we have references to the wearing of *uṣṇīṣa* by priests while performing a *homa* (XLII.30) and by a monarch while proceeding on an expedition (XLIII.27). The king is exhorted to enjoy *uṣṇīṣa* every morning (*YY*, II.25). The sight of *uṣṇīṣa* at the commencement of a journey was considered to be auspicious (*YY*, XIII.10; *TY*, IX.11). Varāhamihira refers to *kañcuka* in connection with the apparel of Sūrya (LVII.48). It formed part of the Northerners' Dress (*udīcya-veṣa*). It is a long corslet covering the whole of the body from the neck to the feet to be seen in the numismatic and sculptural representations of the Kuṣāṇa kings as also in the early figures of Sūrya. Reference is made to foot-wears also (*pādukā*, LXX.9; *upānah*, LXXXVIII. 1, 12; XCIV.14). There are only vague allusions to female apparel (LV.6; LXXVII.3).

DYED CLOTHES. People were very fond of dyed clothes. We read of garments of various colours and their wearers (LXXXVI.15, 40; C.8). Mention is made of clothes coloured in yellow (XXIV. 18; LVII. 32; LXXXVI.25), blue (LXXXV.79) and red (LXXXVI.19). The fact that the white cloth is best suited for dyeing in red, black and other colours is recorded in *YY*, II.1. The bride and the women attending marriage festivities dressed themselves in clothes coloured in *kusumbha* (*Carthalus tinctorius*) flowers (*VP*, 10, 12). Ascetics wore saffron-red garments and were consequently styled *kāṣāyin* (*YY*, XIII.14; *TY*, IX.15). The fondness for coloured clothes led to the growth of dyeing profession (*rāga-yukti*, XVI.17).

It must, however, be noted that some sort of sanctity was attached to white unwashed garments. Thus unwashed (*ahata*) cloth was to be used for wrapping the wood meant for Indra's flag-staff (XLII.24). Horses and elephants at the *Nīrājana* ceremony were also covered with unwashed white cloth (XLIII.15). The priests while officiating at a *homa* were attired in white garments (XLII.30). While launching on a military expedition a monarch was to be draped

१. मेखला वस्त्रस्योपरि बध्यते, नीवीति लोकप्रसिद्धा । तथा च । नीविराग्रन्थने नार्या जघनस्थस्य वासस-इति ।

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in white clothes and turban and white umbrella and chowrie were held over him (XLIII.24, 27; *BY*, XX.1.2). New clothes were to be worn while performing religious rites (LXXXVII.40; *BY*, XV.3). The glance at a white cloth at the commencement of a journey was regarded as auspicious (*YY*, XIII.11). The king is enjoined upon to enjoy white clothes in the morning (*YY*, II.25).

GENERAL REMARKS. Elegance and simplicity in dressing were highly appreciated (XLII.23, 25; *BY*, I.4). Varāhamihira recommends the wearing of new clothes on the occasion of marriage, reception of a king, on the recommendation of Brāhmaṇas, and in case the clothes are presented by the king or are marriage-gifts (LXX.8, 14).[1]

II. *Ornaments*

Indians from very ancient times were excessively fond of embellishing their person with various kinds of ornaments (*alaṅkāra*[2], *ābharaṇa*[3], *bhūṣaṇa*[4], *vibhūṣaṇa*[5]) worn on different parts of the body. Although both the sexes vied with each other in the use of ornaments, women[6] undoubtedly excelled men.[7] We read of soldiers appeasing their sweethearts by presenting them with ornaments seized from the women of the enemy (*YY*, IV.19). The art of dressing (*veśa*), which included proper use of ornaments, was regarded as an excellence of women (LXXVII.13). Vātsyāyana also includes the art of wearing ornaments (*bhūṣaṇa-yojana*) in the list of sixty-four *aṅgavidyās* (I.3.16) and asks a wife not to go to her husband in privacy without some ornaments on her person (IV.1.13). Putting on ornaments on festive occasions like marriage was considered to be auspicious (*VP*, 10). This exceedingly great

1. Verse 14 is not found in S. Dvivedi's edition. For astrological beliefs regarding the wearing of new cloths, see *infra* Ch. VI
2. XLVII.74; LVII.29; LIX.14; LXXXVI.8, etc.
3. XIX.16; L.19; *YY*, II.26; IV.19; VI.24; *BY*, XV.12.
4. XLII.41, 43; XLVII.33; LI.3, 5; LVII.29; LXVII.112; LXXVI.1; XCVII.10, etc.
5. XVI.29; XLII.49; LXXVII.3.
6. Cf. XIX.16; LXXIII.1. Also cf. LXXIII.2 which says that damsels impart beauty to jewels and are not adorned by the grace of the latter and that ladies captivate men's hearts even without jewels but the latter cannot do so unless they come into contact with the limbs of women.
7. Cf. LXXVI.1; C. 1; CIII.33.

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love of ornaments gave rise to the profession of skilled ornament-makers (*bhūṣaṇajña*, XV.12). Ornaments differed from country to country (LVII.29) and were worn on almost all parts of the body.

HEAD-ORNAMENTS. 1. *Śiromaṇi* or head-jewel was usually worn by kings. Varāhamihira speaks of a king shining like the autumnal sun on account of the mass of glittering rays issuing from his head-jewel, and of the earth in front of the suzerain being variegated by the rays radiating from the *śiromaṇis* of the prostrate feudatories (XLIII.23; XLII.36; *YY*, VIII.18). It is evidently the same as the *cūḍāmaṇi* of Kālidāsa and Bāṇa.[1] In art we find it represented variously.

2. *Uttaṁsaka*, a chaplet worn on the crown of the head or a floral ear-ornament.[2] Lions in the Vindhya forest are described as wearing the *uttaṁsakas* of *bāṇa* flowers on their heads (XII.6). Elsewhere, blooming trees on the banks of rivers are compared to the *uttaṁsakas* worn by a lady (LV.7).

3. *Mukuṭa*, or crown studded with gems of various shades and diamonds was worn by kings (XLIII.25) and displayed in the images of gods (LVII.47).[3] The *Mānasāra* describes several varieties of crowns like *jaṭā-makuṭa*, *kirīṭa-makuṭa*, *karaṇḍa-makuṭa* and *śirastraka*, the first consisting of the matted locks of hair tied together in the form of a crown in the centre of the head and the remaining ones actually denoting different types of crown. 'The *Kirīṭa-makuṭa*', says T. A. Gopinatha Rao, 'is a conical cap sometimes ending in an ornamental top carrying a central knob. It is covered with jewelled discs in front or on all sides, and has jewelled bands round the top as well as the bottom'.[4] According to him, it is especially appropriate for Viṣṇu Nārāyaṇa among the gods and *cakravartī* rulers among human beings.[5] But Varāhamihira employs

1. B.S. Upadhyaya, *India in Kālidāsa*, p. 202; V.S. Agrawala, *Harṣacarita*, p. 168; *Kādambarī, A Cultural Study* (Hindi), p. 186.

2. Cf. *Amarakoṣa*, III.3.227 and Utpala's comm. on XII.6 and LV.6 where *uttaṁsaka* is explained as *śiro-mālā* and *karṇa-puṣpāṇi muṇḍa-mālā vā* respectively.

3. Cf. XII.1 which represents gods as wearing *mukuṭa*.

4. *Elements of Hindu Iconography*, Vol. I, Pt. 1, p. 29, Pl. IV, Figs. 20, 21.

5. *Ibid*.

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mukuṭa and *kirīṭa* in the same sense and extends its use to Sūrya (*mukuṭadhārī*, LVII.47), Kubera (*vāmakirīṭī*, LVII.57) and the Bhūta-gaṇas (*BY*, XV.12) also. In the extant sculptural representations there is very little difference between the crowns worn by Viṣṇu and Sūrya.

4. *Paṭṭa*. It is an ornamental golden band arranged on the turban. Its use was confined to the king and certain dignitaries of the state and indicated their place in its body politic. The Paṭṭalakṣaṇādhyāya (Ch. XLVIII) of the *Bṛhatsaṁhitā* gives measurements for five kinds of *paṭṭa* meant for the king, queen, crown-prince, army-chief, and for one upon whom the king is pleased to confer this privilege (*prasāda-paṭṭa*). The first four were adorned with five, three, three and one crests respectively while the *prasāda-paṭṭa* had no such crest attached to it. The five *paṭṭas* were required to be 8 (6″), 7 ($5\frac{1}{4}$″), 6 ($4\frac{1}{2}$″), 4(3″) and 2($1\frac{1}{2}$″) digits broad in the middle, the length being double the above breadth and the breadth on the sides being half that in the middle. All these *paṭṭas* were to be made of pure gold.[1] Great care was taken in preparing them. It was believed that the gold sheet for the *paṭṭa* expanding easily in the course of its preparation augured prosperity and victory to the king and happiness to his subjects. On the contrary, a dint or a crack in the middle was taken to bode calamity. The king was required to observe *śāntis* in order to forestall calamities resulting from ill-omens in the course of making a

1. विस्तरशो निर्दिष्टं पट्टानां लक्षणं यदाचार्यैः ।
तत्संक्षेपः क्रियते मयाऽत्र सकलार्थसम्पन्नः ॥
पट्टः शुभदो राज्ञां मध्येऽष्टावङ्गुलानि विस्तीर्णः ।
सप्त नरेन्द्रमहिष्याः षड् युवराजस्य निर्दिष्टः ॥
चतुरङ्गुलविस्तारः पट्टः सेनापतेर्भवति मध्ये ।
द्वे च प्रसादपट्टः पञ्चैते कीर्तिताः पट्टाः ॥
सर्वे द्विगुणायामा मध्यादर्धेन पार्श्वविस्तीर्णाः ।
सर्वे च शुद्धकांचनविनिर्मिताः श्रेयसो वृद्ध्यै ॥
पंचशिखो भूमिपतेस्त्रिशिखो युवराजपार्थिवमहिष्योः ।
एकशिखः सैन्यपतेः प्रसादपट्टो विना शिखया ॥

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paṭṭa.[1] Kālidāsa, it is interesting to note, represents king Sudarśana as wearing *jāṁbūnada-paṭṭa* (*Raghuvaṁśa*, XVIII.44). Bāṇa mentions *mahādevī-paṭṭa* worn by Yaśomatī, wife of king Prabhākaravardhana.[2]

PEARL-NECKLACES. Apart from its technical sense, the word *hāra* was used to designate necklaces in general.[3] The various kinds of pearl-necklaces catalogued by Varāhamihira are not typical of his own time exclusively. Their history goes back to a much earlier date as is clear from the fact that some of them are defined in almost identical manner in Kauṭilya's *Arthaśāstra* (II.11). A list of necklaces described by our author is given below.

1. *Inducchanda*. It comprises 1008 strands of pearls, and is four cubits (6′) long. Its use was confined to the gods. (*Surabhūṣaṇaṁ latānāṁ sahasram=aṣṭ-ottaraṁ caturhastam Inducchando nāmnā*—LXXX.31). *Inducchanda* seems to be an error for *Indracchanda* which is met with in the *Arthaśāstra*. This is also suggested by Varāhamihira's statement that it was meant for the gods. In the scene of Buddha's birth in Cave II at Ajanta Indra is shown wearing a necklace consisting of innumerabh strands. It may be intended for the *Indracchanda*.

2. *Vijayacchanda* is half the above, i.e. consists of 504 strings, two cubits (1½ feet) long (*vijayacchandas=tad=ardhena* —LXXX.31).[4]

3. *Devacchanda*. It is made up of a series of 81 strings, two cubits (1½′) in length (*devacchando hy=śītir=ekayutā*, LXXX.32). The *Amarakoṣa* (II.6.105) regards it as a 100-stranded necklace.

1. क्रियमाणं यदि पत्रं सुखेन विस्तारमेति पट्टस्य ।
वृद्धिजयौ भूमिपतेस्तथा प्रजानां च सुखसम्पत् ।
जीवितराज्यविनाशं करोति मध्ये व्रणः समुत्पन्नः ।
मध्ये स्फुटितस्त्याज्योविघ्नकरः पार्श्वयोः स्फुटितः ॥
अशुभनिमित्तोत्पत्तौ शास्त्रज्ञः शान्तिमादिशेद्राज्ञः ।
शस्तनिमित्तः पट्टो नृपराष्ट्रविवृद्धये भवति ॥
XLVIII.6-8.

2. *Harṣacarita*, V. p. 231. The feudatories assembled in Harṣa's camp wore *karṇotpalas* whose stems were held by *uṣṇīṣa-paṭṭas*. Cf. *Ibid.*, VII, p. 279-80.

3. e.g., IV.32; XLII.32. Cf. *Amarakoṣa*, II.6.105.

4. Cf. *Arthaśāstra*, p. 76.

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4. *Hāra* is composed of 108 strings, two cubits long (*śata=maṣṭayutaṁ hāro*, LXXX.32).

5. *Ardhahāra* is formed by sixty-four chains, two cubits in length (*aṣṭ-āṣṭako= rdhahāro*, LXXX.32).[1] The *Amarakoṣa* (II.6.106) mentions it as one of the numerous varieties of necklaces differing from one another on account the number of chains.

6. *Raśmikalāpa* contains fifty-four strings (*raśmikalāpaś= ca nava-ṣaṭkaḥ*, LXXX.32).[2]

7. *Guccha*, a necklace of 32 strands (*dvātriṁśatā tu guccho*, LXXX.33),[3] probably the same as the *gutsa* of the *Amarakoṣa* (II.6.105).

8. *Ardhaguccha* comprises twenty strands according to Varāhamihira (*viṁśatyā kīrtito=rdhagucchākhyaḥ*, LXXX.33), and twenty-four according to Kauṭilya (*caturviṁśatir=ardhagucchaḥ*), and is the same as the *gutsārdha* mentioned in the *Amarakoṣa* (II.6.105).[4]

9. *Māṇavaka* is made up of sixteen strings according to our text (*soḍaśabhir=māṇavakaḥ*, LXXX.33) but twenty strings according to the *Arthaśāstra* (*viṁśatir=māṇavakaḥ*).[5]

10. *Ardhamāṇavaka*. According to Varāhamihira, it comprises twelve strings of pearls (*dvādaśabhiś=c-ārdhamāṇavakaḥ*, LXXX.33), but Kauṭilya considers it to be half of his *māṇavaka*, i.e. 10 strands.[6]

11. *Mandara* consists of eight strings of pearls (*mandarasaṁjño=ṣṭābhiḥ*, LXXX.34).

12. *Hāraphalaka* is composed of five pearl-strands (*pañcalatā hāraphalakam=ity=yuktam*, LXXX.34).[7] It is depicted in a number of Ajanta paintings and sculptures[8] (Fig. 11).

1. Cf. *Arthaśāstra*, p. 76.
2. Cf. *Catuṣpañcāśad=raśmikalāpaḥ*, *Arthaśāstra*, p. 76.
3. Cf. *Dvātriṁśad=gucchaḥ*, *Arthaśāstra*, II.11, p. 76 & *Dvātriṁśal=latiko gucchaḥ*, Bhānuji Dikṣita on *Amarakoṣa*, II.6.105.
4. Cf. Bhānuji Dikṣita on *Amara*, II.6.105—*Caturviṁśati-yaṣṭiko hāro gutsārdhaḥ*.
5. It is also referred to in *Amara* II.6.106, and a verse cited by Bhanuji gives the number of strings as twenty-*Viṁśati-yaṣṭiko hāro māṇavaḥ parikīrtitaḥ*.
6. According to Kauṭilya, the *māṇavaka* necklace with a gem at the centre bore the name of that gem with the word *māṇavaka* suffixed to it—*tato=rdham=ardhamāṇavakaḥ, eta eva maṇimadhyās=tan=māṇavakā bhavanti*, *Arthaśāstra*, II.11, p. 76.
7. It is different from Kauṭilya's *phalakahāra* which has three or five plaques (*phalakas*). Cf. *MASI*, No. 73, p. 57.
8. Yazdani, *Ajanta*, Part I, Pls. XXXIII, XXXVII; Part II, Pl. X(a).

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13. *Nakṣatramālā.* Kauṭilya takes it as comprising twenty-seven strings of pearls. In the Gupta age, however, it denoted a single strand of twenty-seven pearls, 1 cubit in length ($1\frac{1}{2}'$) as is evident from its almost identical definition in our text as well as in the *Amarakoṣa.*[1] Its popularity in subsequent period is vouched for by Bāṇa who frequently refers to it as an ornament tied round the neck of elephants.[2] The *Paüma-cariya* (II.39) also mentions *nakṣatramālā* as a necklace of an elephant.

14. *Maṇisopānaka,* a single-stringed pearl-necklace with precious stones or gold beads inserted at regular intervals (*antara-maṇisaṁyuktā maṇisopānaṁ suvarṇa-gulikair=vā,* LXXX.35). Kauṭilya understands it in a somewhat different sense: strings of pearls with a golden wire between two strands is *sopānaka* and the same with a central gem is known as *maṇisopānaka* (*suvarṇa-sūtr-āntaraṁ sopānakaṁ, maṇi-madhyaṁ vā maṇisopānakam, Arthaśāstra,* II.11).

15. *Cāṭukāra,* the same as the *maṇisopānaka* with a *taralaka* gem in the centre (*taralaka-maṇi-madhyaṁ tad=vijñeyaṁ cāṭukāram=iti,* LXXX.35).

16-17. *Ekāvalī and Yaṣṭi. Ekāvalī* is a single strand of pearls, 1 cubit long, without any precious stone whatsoever (*Ekāvalī nāma yatheṣṭa-saṅkhyā hasta-pramāṇā maṇi-viprayuktā,* LXXX.36).[3] The *Arthaśāstra* and the *Amarakoṣa* also understand it in the same sense.[4] In view of this, the opinion so popularly held by scholars that the 1-stringed pearl-necklace with a bigger gem in the centre displayed round the neck in so

1. *Saptāviṁśati-muktā-hasto nakṣatramāl—eti,* LXXX.34; *S=aiva nakṣatramālā syāt saptaviṁśati-mauktikaiḥ, Amara,* II.6.106. In a jewellery deposit at. Taxila dating from Parthian times is included a gold necklace of 27 pieces. At either end is a terminal inlaid with lapiz lazuli and white paste, of which fragments still adhere. Other pieces are inlaid alternately with rock crystal cut *en cabouchon* and white and blue paste—blue in centre and at base and white in the four '*comma*' leaves. Cf. *ASI, AR,* 1924-25, p. 49, P. XI.2. Though not composed of pearls, it may be identified with our *nakṣatra-mālā.* (Fig. 12.)

2. Cf. *Hima-śilā-śakalamayena vibhrama-nakṣatramālā-guṇena śiśirī-kriyamāṇam; Nakṣatramālā-maṇḍita-mukhīṁ kariṇīm, Harṣa-carita,* II & IV, pp. 105, 205; *Kādambarī,* pp. 18, 192, 213, 415.

3. In XIII.1, the northern quarter with the Saptarṣis (Great Bear) is compared with a lady decked with *ekāvalī* and a garland of lotus flowers.

4. *Sūtram=ekāvalī śuddhā, Arthaśāstra,* p. 76; *ekāvaly=ekayaṣṭikā, Amara,* II.6.106.

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many sculptures and paintings of the Kuṣāṇa and Gupta periods represents *ekāvalī*[1] is far from being correct. On the other hand, it should be identified with *yaṣṭi*, which, according to both Varāhamihira and Kauṭilya, denotes a single string of pearls with a central gem (*saṁyojitā yā maṇinā tu madhye yaṣṭ-īti sā bhūṣaṇa-vidbhir=ukta*, LXXX.36; *S=aiva maṇi-madhyā yaṣṭiḥ*, *Arthaśāstra*, II.11). A pearl-necklace with blue saffires is actually styled *yaṣṭi* and *muktāguṇa* by Kālidāsa.[2] *Ekāvalī* (Fig. 11) and *yaṣṭi* were very popular in the Gupta and subsequent periods. Bāṇa compares Rājyaśrī, the only daughter of Prabhākaravardhana and Yaśomatī, over their two sons, Rājyavardhana and Harṣa, with an *ekāvalī* hanging over the breasts.[3] *Yaṣṭi* is to be seen in a number of paintings at Ajanta[4] (Fig. 13). The evidence of sculpture, terracotta and painting leaves no room for doubt about the universal popularity of these two necklets.

OTHER ORNAMENTS. We have references to some other ornaments also, viz. (i) flat torques worn in the neck (*graiveyaka*, XLII.46),[5] (ii) ear-rings (*kuṇḍala*, XLIII. 25: XLIX.2: LVII.32, 36, 47), (iii) armlets (*keyūra* XLII.44, 45:[6] *aṅgada*, XLIII.25),[7] (iv) bracelets (*valaya*, XII.10),(v) anklets (*nūpura*, XLVII.14: LXXVII. 1-3)(vi) golden mid-bands called *haimakakṣya*[8] (XXIV. 17), and (vii) zones worn by women

1. C. Sivaramamurti, *MASI*, No. 73, pp. 57-8; V.S. Agrawala, *Harṣa-carita*, p. 198.

2. *Raghuvaṁśa*, XIII.54; *Meghadūta*, I. 46. Also cf. *Raghuvaṁśa*, XVI. 19. In *Raghuvaṁśa*, XIV.48, Kālidāsa describes the river Mandākini flowing at the foot of a hill as a *muktāvalī* (the same as *ekāvalī*) round the earth's neck.

3. *Harṣa-carita*, IV, p. 192—*Yayā dvayoḥ sutayor=upari stanayor=iv-aikāvalī-latayā nitarām=arājata jananī.*

4. Yazdani, *Ajanta*, part I, Pls. XXIV-XXV; Part II, Pl. XIa, etc.

5. Cf. Vogel, *Catalogue of the Arch. Museum at Mathura*, Pls., X, XII, XVb.

6. Of variegated colours and made of peacock-feathers.

7. Decked with multi-coloured gems and diamonds.

8. It was worn in the *upavīta* fashion and fastened to the neck in such a manner that it fell on the breasts (*Amara*, II.6.36). Cf. *Pādatāḍitaka*, verse 45. A Yakṣī from Amaravati (Sātavāhana period), now in Madras Govt. Museum, is shown wearing a *haimakakṣya* (*MASI*, 73, p. 51, fig. 7). It is very common at Ajanta.

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(*raśanā*, XLII.32, 42; *YY*, IV.14: VIII.13; *raśanā-kalāpa*, LXIX.4; *kāñcī-kalāpa*, XLVII. 14; LV.6).[1] At one place the girdle (*mekhalā*) meant to hold the loin cloth in position is distinguished from the ornamental one (*kāñcī-kalāpa*, LV.6). There is a reference to elaborate zones impeding the gait of the wearer (XLVII.14). The zone presented by Śiva to Indra's flagstaff is said to have been variegated in colour, presumably because of the alternative arrangement of precious stones of various colours (XLII.42). Several varieties of zones are to be found in contemporary sculpture.

Mention is also made of some unspecified ornaments in connection with the festival of Indra's banner: ornaments of the hue of the red *aśoka* flower and quadrangular in shape (*raktāśoka-nikāśaṁ caturasram*, XLII.42); bluish red and octagonal (*aṣṭāśri nīla-raktam*, XLII.43); black and shaped like *masūra* grain (*asitaṁ masūrakam*, XLII.43); hued like madder, hexagonal and resembling waves of water (*mañjiṣṭhābham, ṣaḍaśri, jalormi-nibham*, XLII.44); circular and bearing the lustre of the flames of fire (*anala-jvālā-saṅkāśam, vṛttam*, XLII. 45); lustrous and appearing like the wheels of a chariot (*ratha-cakrābham, prabhā-yuktam*, XLII.46). Two ornaments known as *udvaṁśa* and *niveśa* bearing the lustre of lotus (*udvaṁśam, saroja-saṅkāśam*) and of blue lily (*niveśam, nīlotpalābhāsam*) are named in XLII.47. The head- ornament placed on the top of Indra's flagstaff by Jupiter and Venus is described as bent at the two ends, broad at the upper end and shining like molten red lac (*kiñcid= adha-ūrdhva-nirmitam=upari viśālaṁ trayodaśaṁ ketoḥ, Śirasi Bṛhaspati-Śukrau lākṣā-rasa-sannibhaṁ dadatuḥ*, XLII.48).

It was considered auspicious to put on jewels while performing religious rites (LXXXII.1; *BY*, XVI.1). The king is asked to enjoy jewels every morning (*YY*, II.25). Precious stones were usually made worth-wearing by boring and stringing them with

1. According to a verse cited by Bhānuji on *Amara*, II.6.108-09, a girdle with 1 string was called *kāñcī*; with 8 strings, *mekhalā*; with 16 strands, *raśanā* and that with 25 cords, *kalāpa*—

एका यष्टिर्भवेत् काञ्ची मेखला त्वष्टयष्टिका: ।
रसना षोडश ज्ञेया: कलाप: पञ्चविंशक: ॥

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threads. Thus, 'old gems, whose perforation is clearly visible, become wearable, when combined with new strings'.[1]

III. *Some Other Articles of Personal Decoration*

There is no doubt that a high standard of living was attained in the Gupta period. Varāhamihira informs us that clubs, umbrellas, goads, sticks, canopies, spears, banners and fly-whisks were used by all sections of society and that the colour of their handles differed from caste to caste (LXXI.4). Of these, fly-whisk (*cāmara*) and umbrella (*chatra*) occupy one chapter each (LXXI-LXXII).

CĀMARA. Chowries were made from the hair on the tail of the *camarīs* found in large number in the Himalayan region. The hair may be slightly yellow, black or white; but glossy, soft, bright and white variety was preferred. The handle of the *cāmara* measured $1\frac{1}{2}$ cubits ($2\frac{1}{4}'$), 1 cubit ($1\frac{1}{2}'$), or a smaller cubit with closed fist (*aratni*). It was made of an auspicious wood. The handle of the royal chowrie was covered in gold or silver and decked with various kinds of jewels (LXXI.1-3). According to a later tradition preserved in Bhoja's *Yuktikalpataru*, a royal *cāmara* should be white, ornamented with gold and diamonds, and measure 2 cubits.[2] It was regarded as an emblem of royalty.[3] An even number of joints in the handle was considered to be calamitous to the owner, while an odd number was taken to be favourable (LXII.5-6). That fly-whisks were in great demand is evident from their inclusion in the list of tradeable commodities (XLI.7).

CHATRA. The parasol was regarded as the insignia *par excellence* of regal power[4] and indicated the position of an

1. प्रायेण सूत्रेण विनाकृतानि प्रकाशरन्ध्राणि चिरन्तनानि ।
रत्नानि शास्त्राणि च योजितानि नवैर्गुणैर्भूषयितुं क्षमाणि ॥ CIII.1.

For some other details see *infra* Ch. V, Section 5.

2. हस्तद्वयोन्नतः शुक्लः सुवर्णबलिभूषितः ।
हीरेणालंकृतो राज्ञां भव्यमानसुखप्रदः ॥
Quoted in *Śabdakalpadruma*, p. 342.

3. Cf. III.18; XVI.23; XLIII.24; LXIX.10.
4. Cf. III.18; XVI.23; XLII.63; XLIII.27; LXVII.45; LXIX.10.

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individual in the body politic of the state. The royal umbrella was made of the feathers of swans, cocks, peacocks or cranes, covered on all sides with a fresh white *dukūla* cloth, adorned with pearls and their long strings suspended all round from its ends, and had a crystal pommel. It was 3 cubits in diameter, well-knit all over and studded with jewels. Its stick, measuring 6 cubits (9 feet), was made of the wood of a single tree, and covered with pure gold. The stick with 9 or 7 joints was taken to be favourable. In Ajanta paintings we have several representations of umbrellas richly decorated with pearl-festoons across the top and a cluster of pearl strings hanging therefrom (Fig. 14).[1] The rods of the umbrellas of the crown prince, queen, army-chief (*senāpati*) and commander (*daṇḍa-nāyaka*) measured 4½ cubits, the diameter of the umbrella proper being 2½ cubits (LXXII.4). The reason of this extra-ordinary length of the rod lies in the fact that these high dignitaries of the state did not carry umbrellas by themselves; they were held over their head by attendants who are represented in art as dwarfish or short-statured.[2] The parasols of the state officials other than the crown prince were intended only for protection from heat and were made with peacock feathers, and decked with the *prasāda-paṭṭa* at the top and with wreaths of jewels hanging on all sides (LXXII.5). In the case of ordinary people an umbrella did not indicate the status of its owner, but was meant to protect from cold and heat. It was to be square. It is interesting to note in this connection that in some paintings at Ajanta monks and common people are represented as carrying umbrellas with squarish top (Fig. 15). The rod of a Brāhmaṇa's umbrella was to be circular and cylindrical (LXXII.6). Umbrellas were also used in religious ceremonials.[3]

1. Cf. Yazdani, *Ajanta* part IV, Pls. XLVI1, LV, LVII-LVIII, LXIV, etc.

2. Cf. *infra*, Ch. VI; for description of Vāmanaka, Kubja and Sācin types of royal attendants, LXVIII.31-40.

3. Cf. XLII.7, 57 (at Indramaha, an umbrella was held over Indra's banner); XLV.31 (over a tree at a *śānti* to expiate any unnatural occurrence in it); XLVII.73 (worshipped after *Puṣyasnāna*); XLIX.2 & LXXVIII.21 (its mark on a sword and elephant's tusk regarded auspicious).

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VI

PERFUMERY AND TOILET

I. *Perfumery*

GANDHAYUKTI. The Gandhayukti section of the *Bṛhatsaṁhitā* (Ch. LXXVI) offers rich material for a chapter on the history of ancient Indian cosmetics. The word *gandhayukti*, which stands for the art and science of cosmetics and perfumery (XV.12; XVI.17), literally means 'a combination of perfumes'.[1] Vātsyāyana (I.3.16) refers to it as one of the sixty-four subsidiary arts connected with erotics. Of the chemical processes employed in the manufacture of perfumes, mention is made of (i) decoction (*pakva*, LXXVI.2), (ii) heating (*tapta*, LXXVI.6), (iii) mixing (*saṁyuta*, LXXVI.12, 16), (iv) fumigation (*pradhūpa*, 6; *dhūpya*, 8, 26, 30; *dhūpayitavya*, 16), (v) sprinkling (*sikta*, 27) and (vi) combination of one powder with another (*bodha* 11, 16; *prabodha* 12; *udbodha* 26; *bodhita* 27).[2] Utpala adds two more, viz., (vii) purification of the ingredients (*dravya-saṁskāra*) and (viii) blending a liquid with another (*vedha*).[3] Elsewhere, *bhāvana* or saturation of a

1. Cf. *Gandhayuktijñā bahubhir=dravyair=miśritair=viśiṣṭataraṁ sugandha-dravyaṁ ye utpādayanti*, Utpala on XV.12. Śūdraka (*Mṛcchakaṭika*, VIII.13) employs *gandhayukti* to denote a cosmetic preparation made by combining certain fragrant substances and meant to sweeten the speech.

2. This definition of *bodha* is based on the following distich cited by Utpala (on LXXVI.11) from Iśvara's Prakrit work *Gandhayukti*—

ओल्लंमि ओल्लओ जो दिज्जइ वेह इति सो भणिओ ।
वोहो उण जो चुण्णो चुण्णविणि अच्छगन्धो सो ॥

Its Sanskrit rendering given by Sudhakara Dvivedi is as follows :—

आर्द्रे आर्द्रो यो दीयते वेध इति स भणितः ।
बोधः पुनर्यश्चूर्णश्चूर्णिते अच्छगन्धः सः ॥

For a discussion on *bodha* and *vedha* and the identification of Iśvara with Lokeśvara mentioned in Padmaśrī's *Nāgarasarvasva* IV.2 see my paper in *ABORI*, XL, pp. 380-82.

3. पाकवेधगन्धधूपनानि लोकतो ज्ञेयानि । आचार्येण नोक्तानि ।
on LXXVI.4;

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powder with a liquid is also incidentally referred to (LXXV. 5, 6).[1]

The wide-spread use of perfumes gave rise to a specialised class of artisans who took to the manufacture of and trade in cosmetics for their occupation (*gandhayuktijña*, XV.12; *gandhayuktivid*, XVI.17; *kācchika*, (LXXXVI.41). The various kinds of perfumes described by Varāhamihira are given below.

HAIR-BATH. A kind of scented water for bathing the head was prepared from equal proportions of cassia bark (*tvac*), costus (*kuṣṭha*), *reṇu*, *nalikā*, *spṛkkā*, resin (*rasa*), *Bignonia chelonoides* (*tagara*), *vālaka*, *kesara* and *patra* (LXXVI.5).

HAIR-OIL. An hair-oil emitting the scent of the *campaka* (*Michelia champaka*) flower was produced from equal quantities of the powders of madder (*mañjiṣṭhā*), *vyāghranakha*, *śukti*, cassia bark, costus, resin, thrown into sesamum oil, and then heated in the sun (LXXVI.6).[2] According to a somewhat different method of preparing scented oils given in the *Agni-purāṇa*, sesamum grains were first perfumed with flowers and then crushed to yield oil. Such an oil would have the scent of the flowers by which sesamum grains are scented.[3]

द्रव्यसंस्कार-पाक-वेध-गन्ध-धूपनादिकं नोक्तम् । एतत् तज्ज्ञेभ्य उपलभ्य कार्यमिति ।

on LXXVI.22.

1. Cf. *Agni-purāṇa*, CCXXIV.20-21 which gives the following eight processes—

शौचमाचमनं राम तथैव च विरेचनम् ।
भावनं चैव पाकश्च बोधनं धूपनं तथा ॥
वासनं चैव निर्दिष्टं कर्माष्टकमिदं स्मृतम् ।

The *Viṣṇudharmottara* II.64.178 has the same eight processes save the replacement of *śauca* and *ācamana* by *śodhana* and *vāsana*. Gaṅgādhara's *Gandhasāra* mentions six processes—

भावनं पाचनं बोधो वेधो धूपनवासने ।
एवं षडत्र कर्माणि द्रव्येषूक्तानि कोविदैः ॥

2. LXXVI.5-6 are borrowed *ad verbatim* by Gaṅgādhara in his *Gandhasāra*, but without naming the source. Cf. P.K. Gode in *BV*, 1945, p. 150, note.

3. तैलं निपीडितं राम तिलैः पुष्पाधिवासितैः ।
वासनात् तत्पुष्पसदृशं गन्धेन तु भवेद् ध्रुवम् ॥
Agni-purāṇa, CCXXIV.33.

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PERFUMES. We get formulae for the preparation of a number of compound perfumes. The perfume obtained by mingling together equal quantities of *ṗatra*, *turuṣka*, *vāla* and *Bignonia chelonoides* was known as *smaroddīpana*, 'kindler of passion.' The same with *vyāmaka* and fumigated with *kaṭukā* and asafoetida was called *vakula*; that with costus gave the fragrance of lotus (*utpala-gandhika*) and with sandal powder, that of *campaka*; and the addition of *jātīphala* (nutmeg), cassia bark and *kustumburu* (spice coriander) yielded a perfume smelling like *atimuktaka* or jasmine flower (LXXVI.7).

Another formula for obtaining eighty-four perfumes of the fragrance of *vakula* flower is set forth in LXXVI.29-30. We are directed to draw a diagram of nine squares in which are to be entered nine aromatic ingredients, viz., *rodhra*, *uśīra*, *Bignonia chelonoides*, *aguru*, *mustā*, *pattra*, *priyaṅgu*, *vana* and *pathyā* in order. Any three substances taken in order should be mixed with one part each of sandal and *turuṣka*, a half of *śukti* and a quarter of *śatapuṣpā* and fumigated with *kaṭukā*, asafoetida and jaggery. In this way by different combinations and permutations we get eighty-four scents.[1] The diagram given in the footnote below will elucidate the process.[2]

Next we are introduced to the manner of preparing some

1. रोध्रोशीरनतागुरुमुस्तापत्रप्रियंगुवनपथ्याः ।
नवकोष्ठात्कच्छपुटाद् द्रव्यत्रितयं समुद्धृत्य ॥
चन्दनतुरुष्कभागौ शुक्त्यर्धं पादिका तु शतपुष्पा ।
कटुहिंगुलगुडधूप्याः केसरगन्धाश्चतुरशीतिः ॥

LXXVI.29-30.

2.

rodhra	*uśīra*	*nata*
aguru	*mustā*	*pattra*
priyaṅgu	*vana*	*pathyā*

Borrowed from Utpala's gloss.

9		
8	36	
7	28	84
6	21	56
5	15	35
4	10	20
3	6	10
2	3	4
1	1	1

Borrowed from *BS*, II, p. 957, note 1.

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all-purpose perfumes called *Sarvatobhadra*.[1] First, we have to make a diagram comprising 16 compartments by drawing 5 lines vertically and 5 across these horizontally and then to place horizontally 2, 3, 5 and 8 proportions of *aguru*, *pattra*, *turuṣka* and *śaileya*; 5, 8, 2 and 3 proportions of *priyaṅgu*, *mustā*, *rasa* and *keśa*; 4, 1, 7, and 6 parts of *spṛkkā*, cassia bark, *Bignonia chelonoides* and *māṁsī*; and 7, 6, 4 and 1 proportions of sandal, *nakha*, *śrīka* and *kunduruka* respectively in individual compartments as shown in the footnote below.[2] Consequently, in whichever way, viz., horizontally, vertically or diagonally, we blend four substances, we get eighteen proportions for each perfume. Each of these compounds should be combined with *nakha*, *Bignonia chelonoides*, *turuṣka*, nutmeg, camphor and musk, and fumigated with jaggery and *nakha*.

1. द्वित्रीन्द्रियाष्टभागैरगुरुः पत्रं तुरुष्कशैलेयौ ।
विषयाष्टपक्षदहनाः प्रियंगुमुस्तारसाः केशः ।।
स्पृक्कात्वक्तगराणां मांस्याश्च कृतैकसप्तषड्भागाः ।
सप्तर्तुवेदचन्द्रैर्मलयनखश्रीककुन्दुरुकाः ।।
षोडशके कच्छपुटे यथा तथा मिश्रिते चतुर्द्रव्ये ।
येऽत्राष्टादश भागास्तेऽस्मिन् गन्धादयो योगाः ।।
नखतगरतुरुष्कयुता जातीकर्पूरमृगकृतोद्वोधाः ।
गुडनखधूप्या गन्धाः कर्तव्याः सर्वतोभद्राः ।।

LXXVI.23-26.

Cf. Utpala (on LXXVI.26-7)— तस्माद् यतस्ततो गृह्यमाणा अष्टादश भागा भवन्ति अतः सर्वतोभद्रसंज्ञाः.

2.

aguru 2	*pattra* 3	*turuṣka* 5	*śaileya* 8
priyaṅgu 5	*mustā* 8	*rasa* 2	*keśa* 3
spṛkkā 4	*tvak* 1	*tagara* 7	*māṁsī* 6
malaya 7	*nakha* 6	*śrīka* 4	*kunduruka* 1

Borrowed from Utpala's gloss on LXXVI.23-4.

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MOUTH-PERFUMES. The aforementioned tetrads taken at will and enriched with nut-meg, musk and camphor and sprinkled with the juice of mango fruits and honey yield several mouth-perfumes with the scent of *pārijāta* flower (LXXVI.27). These appear to have been done into small tablets for chewing. According to the *Agni-purāṇa* (CCXXIV. 34), numerous mouth-perfumes (*mukha-vāsaka*) were formed by combining small cardamoms, cloves, *kaṅkola*, nutmeg, *niśākara* and *jātī-pattra*. Next the same work details the mode of making perfume-tablets (*guṭikās*) for chewing. It is interesting to note that nutmeg, musk, camphor and mango-juice continued till late as regular components of mouth-perfumes as is clear from their mention in this connection in the *Agni-purāṇa* (CCXXIV.34-8), *Śārṅgadhara-paddhati* (verse 3250) and *Nāgara-sarvasva* (IV.7-9).

BATH POWDERS. All the aforesaid perfumes which need *śrīvāsaka* and *sarja* in their preparation make fine bath-powders when these are replaced by *vālaka* and cassia bark (LXXVI. 28). In the *Nāgara-sarvasva* (IV.12) we read of a bath-powder made from cassia bark, *aguru*, *mustaka*, *Bignonia chelonoides*, *caura*, *saṭhī*, *granthi*, *parṇaka*, *nakha* and musk. The *Agni-purāṇa* (CCXXIV.27b-29) regards cassia bark, *nāḍī*, *phala*, oil, saffron, *granthi-parvaka*, *śaileya*, *Bignonia chelonoides*, *krāntā*, *caula*, *camphor*, *māṁsī*, *surā* and costus as articles for bath (*snāna-dravyāṇi*), and taking any three of these and mixing the same with musk, we get many bath-perfumes.

INCENSE. Various kinds of incense (*dhūpa*) were also in use, especially in religious worship (XLVII.32). The mixture of $\frac{1}{4}$th of *śatapuṣpā* and *kunduruka*, $\frac{1}{2}$ of *nakha* and *turuṣka*, and $\frac{1}{4}$th of sandal and *priyaṅgu* yielded an incense which was fumigated with jaggery and *nakha*. Utpala tells us that the practice among the perfumers was to fumigate first all these ingredients with *harītakī* before doing so with jaggery and *nakha*.[1] Another type of incense was obtained by blending

1. शतपुष्पाकुन्दुरुकौ पादेनार्धेन नखतुरुष्कौ च ।
मलयप्रियंगुभागौ गन्धो धूप्यो गुडनखेन ॥ LXXVI.8.

Cf. Utpala—*Yatra yatra gandho dhūpyate tatr-ādāv=eva harītakyā dhūpyaḥ paścād=ukta-dravyeṇ=ety=āgama-vidaḥ prāhuḥ.*

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equal quantities of *guggulu*, *vālaka*, lac (*lākṣā*), *mustā*, *nakha* and sugar. The *Piṇḍa-dhūpa* (perfume lump) was constituted by *māṁsī*, *vālaka*, *turuṣka*, *nakha* and sandal mixed in equal proportion. The Cālukya king Someśvara in his *Mānasollāsa* gives a different list of ingredients for the formation of the *Piṇḍa-dhūpa*. According to him, equal portions of the powder of lac, *guggula*, camphor, *rāla*, *kuṇṭuru*, *silhaka* (the same as *turuṣka*), *śrīkhaṇḍa*, *sarala* wood, *laghu-koṣṭha*, *vālaka*, *māṁsī*, saffron, *pathyā*, musk, *pūti-bījaka*, *śaṅkha-nābhi*, *nakha*, sugar, honey, clarified butter, and jaggery, except the liquids, when mixed with two parts of *laghu-karpūra*, yielded *Cūrṇa-dhūpa* (incense powder), while the same including the liquids (*silha*, honey, clarified butter) when made into lump with the help of jaggery formed *Piṇḍa-dhūpa*.[1] The highly prized incense called *Kopa-cchada* was made from four parts each of sugar, *śaileyaka* and *mustā*, two parts each of *śrīvāsaka* and *sarja*, and one part each of *nakha* and *guggulu* mixed with the powder of camphor and done into lumps with honey (LXXVI.11). Many varieties of incense were obtained by combining nine aromatic ingredients, viz., *harītakī*, *śaṅkha*, *ghana*, *drava* (*rasa* or resin), *vālaka*, jaggery, *utpala* (costus), *śailaka*, *mustā*, in proportions indicated by multiple of 1/9th (LXXVI.10). Thus each of these substances mixed in different proportions yields eight *dhūpas*, the total number being seventy-two.[2]

An interesting method of obtaining a surprisingly large number of incenses is found in LXXVI.13-22. All imaginable combinations and permutations of every four of the following sixteen aromatic ingredients in 1, 2, 3 and 4 parts are said to

1. *Mānasollāsa*, Vol. II, p. 144, verses 1697b—1701a.

2. Cf. Utpala— *Evaṁ pratyekasya dravyasya bhāga-parikalpanay—āṣṭau dhūpā bhavanti*. Combination of these constituents in all possible orders gives the total number 362880, as worked out by V.S. Sastry in his edition of *BS*, p. 605.

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give 1820[1], 43680 or 174720 different kinds of frankincense.[2] The sixteen ingredients are : *ghana*, *vālaka*, *śaileyaka*, camphor, *uśīra*, *nāga-puṣpa*, *vyāghra-nakha*, *spṛkkā*, *aguru*, *madanaka*, *nakha*, *Bignonia chelonoides*, coriander, camphor, *cola* and sandal.[3] In no preparation more than one part of coriander need be added, and camphor should be added in still less porportion, for their smell is too strong, and if used in larger proportions they would diminish the fragrance of other substances (LXXVI.15).[4] All these substances were first severally fumigated with *śrīvāsaka*, *sarja*, jaggery and *nakha* and then mixed with musk and camphor (LXXVI.16).

TALCUM POWDER (*PUṬAVĀSA*). Varahamihira gives us the method of preparing a talc powder. Cassia bark, *uśīra*, and *pattra*, taken in equal proportion, and small cardamom in half quantity, when powdered and enriched with musk

1. Cf.

16			
15	120		
14	105	560	
13	91	455	1820
12	78	364	1365
11	66	286	1001
10	55	220	715
9	45	165	495
8	36	120	330
7	28	84	210
6	21	56	126
5	15	35	70
4	10	20	35
3	6	10	15
2	3	4	5
1	1	1	1

Borrowed from comm. on LXXVI.22.

2. Cf. Utpala's gloss on LXXVI.21.

3. Cf.

ghana	*vālaka*	*śaileya*	*karpūra*
uśīra	*nāgapuṣpa*	*vyaghra-nakha*	*spṛkkā*
aguru	*madanaka*	*nakha*	*tagara*
dhānya	*karpūra*	*cola*	*malaya*

Borrowed from Utpala.

4. Cf. Utpala—*Etau dvau dvi-try=ādibhir=bhāgaiḥ praptāv=api na deyau.....yatas=tad=utkaṭatvād=anya-dravyāṇāṁ gandha-hānir=bhavati.*

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and camphor yielded a powder named *Puṭavāsa* which was applied to the whole body[1] (LXXVI.12). In case the variant reading *paṭavāsa* noticed by the commentator is accepted, this powder would appear to have been used for perfuming cloths.

II. *Toilet*

Even regarding toilet, Varāhamihira furnishes some interesting information.

HAIR-DYE (*MURDHAJA-RĀGA*). As garlands, perfumes, incense, cloths, ornaments and other articles of decoration fail to embellish the person of a grey-haired man, his anxiety for darkening the hair is quite natural (LXXVI.1).[2] A hair-colouring device is, therefore, given in LXXVI.2-4. Boiled with an acid-gruel (*śukla*)[3] in an iron vessel, *kodrava* (*Paspalam Scrobiculatum*) grains along with iron powder (*loha-cūrṇa*) should be ground to a fine paste. A grey-haired man should apply it to his head, already washed with an acid gruel and keep the head covered with green leaves for six hours; then having removed it, he should apply myrobalan paste and screen the head with green leaves for another six hours whereafter the head should be washed and the hair would be found turned black. Next, he should remove the repelling odour of iron and acid by the aforedescribed hair-bath and scented oils. Utpala informs us that most of these ingredients were washed with vinegar (*kāñjika*), some with clean water, others with bovine urine and then cooked in an iron vessel with *nakha* and gingelly oil.[4] An older work, the *Navanītaka*[5] (cir. 2nd century A.D.) describes as many as eleven hair-dyes-recipes and refers to forty-six ingredients employed in their preparation, some being colour-producing agents. Of these only three, myro-

1. It is clear from Utpala's rendering of *Puṭa-vāsa* by *aṅgoddhūlana*.

2. A woman with prematurely grey hair is disapproved for sex relations (LXXVII.17).

3. *Kāñjika* according to Utpala.

4. *Atra dravyāṇāṁ sarveṣāṁ prāyaḥ kāñjikena kṣālanaṁ nirmalena keṣāñcij =jalena keṣāñcid=go-mūtreṇa nakha-tila-tailen-ā'yasa-bhāṇde paeet mṛdi=agninā*, Utpala on LXXVI.4.

5. X.1-27. Edited by Kaviraj Balwant Singh Mohan, Lahore, 1925. The text is quoted and ingredients are catalogued by P. K. Gode in *BV*, XI (1950), pp. 40-45.

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balan, iron powder and iron vessel, are common to the *Navanītaka* and *Bṛhatsaṁhitā* lists; but the latter adds *kodrava-taṇḍula* and *ārdra-pattra* (green leaves), which are unknown to the former.

HAIR-DRESSING AND SHAVING. A short-haired woman was detested.[1] Women perfumed their hair (LXXVII. 15)[2] and fastened them in long tresses (*veṇī*, L. 40; LXXVII. 1).[3] The great care paid to the hair is obvious from the fact that a glance at a man with besmeared but loose hair and suffering from hair-diseases at the commencement of a journey was considered to be inauspicious (*YY*, XIII.14).

Let us now turn our attention to practices appertaining shave (*kṣaura*). The constellations of Hasta, Citrā, Svāti, Mṛgaśiras, Śravaṇā, Dhaniṣṭhā, Śatabhiṣaj, Revatī, Aśvinī, Jyeṣṭhā, Puṣya and Punarvasu, the moment of their rise or of the *muhūrtas* presiding over them, and when the moon and stars are favourable, are recommended for tonsurial operations (XCVII.12). On the contrary, a shave at the morning and evening junctures (*sandhyās*), at night, on Saturday, Tuesday and Sunday, on the 4th, 9th and 14th *tithis*, on the 9th day counted from the previous shave, and in Viṣṭi *karaṇa* was disapproved. The rules of decorum required that one should not shave after bath, immediately before proceeding on a journey, after wearing ornaments, anointing the body with oil and taking food, at the time of battle and without a seat (XCVII. 13;[4] *YY*, II.35). But shaving was allowed irrespective of all

1. Varāhamihira disapproves such a woman for sexual intercoarse, LXXVII.17.

2. Cf. *Kumāra-sambhava*, VII.14; *Meghadūta*, I.32; *Ṛtu-saṁhāra*, I.4; II.22.

3. A woman's loosening her locks of hair (*keśa-vimokṣaṇa*) in the presence of a man was construed as a mark of love for him, LXXVII.3.

4. While commenting on this verse, Utpala quotes dissenting views of some older commentators. According to some, a shave in certain circumstances could be allowed on the 4th and 14th *tithis*, but in no case on the 9th नवमेंह्नि न चापि विष्ट्यामित्यत्र केचिदन्यथा व्याख्यानं कुर्वन्ति । नवमदिवसग्रहणमत्यन्तनिषेधार्थम् चतुर्थ्यां चतुर्दश्यामपि कार्यातिपतौ कर्तव्यं क्षुरम्, न नवम्याम् । तथा च । न नवम्यंगारकवर्जमिति लोकवचनं प्रदर्शयन्ति ।

According to two verses cited in Vyāsa's name, shaving on the 4th, 6th, 8th, 14th and 15th *tithis* was not permitted—

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astrological considerations at royal command, at the instance of Brāhmaṇas, on the occasion of a marriage, while mourning a death, at release from prison, and when initiated for performing a sacrifice (XCVII.14). The beard was generally cropped up every fifth day (*YY*, II.35).[1] Vātsyāyana (I.4.17), however, recommends the cleansing of the face every fourth day, while the hair of private parts were to be removed every fifth or tenth day.

TOOTH-STICKS (*DANTA-KĀṢṬHA*). Tooth-sticks were extensively used for cleaning teeth,[2] and some beliefs about them are recorded in the Danta-kāṣṭha-lakṣaṇādhyāya of the *Bṛhatsaṁhitā* (Ch. LXXXIV). Twigs of thousands of creepers, spreading plants, shrubs and trees were used as tooth-sticks, those of *vikaṅkaṭa*, *bilva*, *kāśmarī*, *kṣema-taru*, banyan, *arka*, *madhūka*, *śirīṣa*, *karañja*, *plakṣa*, *jāti*, *ficus religiosa*, jujube, *bṛhatī*, teak, *śrī-phala*, jasmine, *kadamba*, *nīpa*, *arjuna*, *karavīra*, *bhāṇḍīra*, *śamī*, *śyāmā*, *śāla*, *aśvakarṇa*, *devadāru*, *cāturūṣaka*, *priyaṅgu*, *apāmārga*, rose apple, and pomegranate being especially recommended and believed to bestow good luck (LXXXIV.1, 3-7). Some of these twigs are also recommended by Suśruta (I.24. 5-7) and Caraka (I.5.48-9). The tooth-sticks that are not tried before, have leaves and an even number of joints, are split, withered at the top, and without skin, it is said, ought not to be used (LXXXIV.2; *YY*, II.20). Normally a tooth-stick should be a *vitasti* (9″) in length (*YY*, II.21).[3]

A recipe for perfuming tooth-sticks is given in LXXVI. 31-4. Kept in bovine urine mixed with the powder of *harītakī*

चतुर्थीं चैव षष्ठीं च अष्टमीं च चतुर्दशीम् ।
तथा पंचदशीं चैव ब्रह्मचारी भवेत् सदा ॥
श्मश्रुकर्म शिरोभ्यंगमंजनं दन्तधावनम् ।
पर्वस्वेतानि यः कुर्याल्लक्ष्मीस्तत्र न तिष्ठति ॥

A prose passage quoted from Parāśara prohibits shaving on the first and 6th *tithis*.

1. Cf. *Bhāva-prakāśa*, I. 1-93.

2. Cf. *On Yuan Chwang*, I, p. 152. Vātsyāyana (I.4.16) requires his *nāgaraka* to cleanse his teeth with a wooden tooth-cleaner (*danta-dhāvana*) every morning.

3. According to a popular belief, one desirous to know the success or failure of his cherished object for the forthcoming year chewed a tooth-stick and then washed and threw it at a clean spot and watched its position. That falling in front in a tranquil direction, occupying an elevated spot or the one falling down after standing erect was taken to bode success, while any other position was regarded as inauspicious (LXXXIV.8-9; *YY*, II.21-2).

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for a week, they were immersed for some time (half a night according to Utpala) in the scented water prepared from small cardamoms, cassia bark, *añjana*, honey, pepper, *nāga-kesara* and costus mixed in equal proportions. Next they (? probably their upper part) were powdered with 4, 2, 1 and 3 parts of nutmeg, cassia bark, small cardamoms and camphor respectively and dried in the sun. Such tooth-sticks, it is said, give freshness of complexion, facial lustre, cleanliness and fragrance of the mouth and sweet speech. A similar device of perfuming tooth-cleaners is found in the *Agni-purāṇa* (CCXXIV.40). But there we are asked to immerse them in bovine urine for only three days instead of a week.

TĀMBŪLA. The practice of chewing betel has been current in India from very early times, as is obvious from its mention in the oldest extant medical treatises *Caraka* (I.5.76-7) and *Suśruta* (Sūtra-sthāna, XLVI.279-80; Cikitsā-sthāna, XXIV.21). It formed a *sine qua non* of ancient Indian toilet.[1] Varāhamihira refers to lime (*cūṇa*), areca nut (*pūga-phala*) and betel leaf (*pattra*) as essential ingredients of a *tāmbūla*. Spices like *kakkola*, clove and nutmeg were also used (LXXVI. 36-7). It is interesting to note that catechu (*khadira*) which is now invariably used with betel and is referred to in all later medical Saṁhitās[2] is conspicuously absent in our text.[3] It is stated that a *tāmbūla* with a moderate quantity of lime imparts good colour, that with an excess of areca nut mars the colour, with an over-dose of lime produces bad odour in the mouth, while the one with an excessive proportion of betel leaf makes it fragrant (LXXVI.36). An over-dose of leaf was taken in the night and that of areca nut in the day. The chewing of betel contrary to it was disapproved (LXXVI.37). The *tāmbūla*, we are told, stimulates love, adds to physical charm, perfumes the mouth, gives strength, dispels phlegmatic diseases (LXXVI.35) and causes amorous intoxication. It is mentioned as an important item of women's toilet in inscriptions.[4]

1. Cf. *Kāmasūtra*, I.4.8, 16; IV.1.36. The *Śukra-nīti* (IV.3.99) regards the preparation and preservation of *tāmbūla* as an art.
2. It is referred to in Vāgbhaṭa's *Aṣṭāṅga-hṛdaya* (Sūtra-sthāna, III. 38), assigned to cir. 625 A.D.
3. It is not mentioned in *Caraka* and *Suśruta* also.
4. Mandasaur inscr. of Kumāragupta and Bandhuvarman, ll.11-2 (*CII*, III, No. 18)—

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FLOWERS AND GARLANDS. Flowers of various descriptions and flower garlands (*sraj*,[1] *mālā*,[2] *mālya*,[3] *dāma*[4]) were profusely used by both men (*mālya-dhara*, C. 8)[5] and women (*mālinī*, XIII.1; CIII.24; *srag-dharā*, CIII.5). Garlands are described as a component of Cupid's snare (LXXV.2). The wearing of garlands by women during menses was prohibited (LXXVII.21). Garlands were, as now, invariably employed for worship (XLII.57; XLVII.27, 32). White garlands were especially esteemed (XIII.1;[6] XLIII.27; *BY*, XX.1).

Incidental references to some other items of toilet also occur. Belles used to decorate their cheeks with various patterns (*tilaka*, CIII.28).[7] Collyrium, noted for darkness,[8] was employed in worshipping manes (XLVII.30) and other religious rites (XLIII.9). *Bhaṅgāñjana*, a special toilet collyrium[9], occurs in LIII.107. It is probably the same as *bhinnāñjana* mentioned in XXXII.21. Uptala (on XLIII.9) names two more varieties, *srotāñjana* and *saubhāñjana*. Various kinds of unguents (*anulepana*, XVI.27; *vilepana*, XLIII.27) were also in use, white ones being regarded as auspicious. Women used to make a mark on their forehead (XXVII.7),[10] presumably with saffron[11] or *hiṅguluka*.[12] *Abhyañjana*, the oil for anointing

तारुण्य-कान्त्युपचितोपि सुवर्ण-हार-ताम्बूल-पुष्पविधिना समलंकृतोपि ।
नारीजनः प्रियमुपैति न तावदश्र्यां यावन्न पट्टमयवस्त्रयुगानि धत्ते ॥

Nagar inscr of Dhanika, dated A.D. 685, verse 11 :—

व्यालोललोचन-जलप्लुति-लांछितानि लम्बालकानि ललित-स्मित-वर्जितानि ।
ताम्बूल-राग-रहिताधरभांजि यस्य कोपश्चकार वदनान्यरि-सुन्दरीणाम् ॥

1. XLIII.27; LXVIII.22, 24; LXXV.2; LXXVI.1; CIII.5.
2. XIII.1; XLII.57; LXVIII.22; LXIX.10.
3. XLVII.27, 32; LXXVII.21; C. 8; *BY*, XX.1.
4. LXVIII.24.
5. Also cf. LXXVI.1; CIII.33; XLIII.24, 27; *BY*, XX.1.
6. It refers to a garland of lotus flowers.
7. *Sakhī-vadanaṁ tilak-ojjvalam.* Utpala tells us that *tilaka* marks were fashioned like *tamāla* leaves—*sakhī-vadanam=āli-vadanaṁ tilak-ojjvalaṁ tamāla-pattr-opaśobhitam. Cf. Amara*, II.6.123.
8. XIX.4; XXIV.4; XXVIII.6, 15; XXXII.21; LIII.107, 110.
9. Cf. *Rāja taraṅgiṇī*, VII.922 for use of the word *bhaṅgī* in the sense of fashion. Also see *JRAS*, 1873, p. 310, fn. 1
10. The chapter containing this stanza is spurious.
11. III.23; X.11; XXIV.14; XLI.10; LIII.26.
12. LIII.110.

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the body, was used in worshipping manes (XLVII.30). *Phenaka* (LXXXVI.12), a lather-giving article, corresponding to soap, was an important item of a gentleman's toilet in those days. Vātsyāyana (I.4.17) requires his *nāgaraka* to cleanse his person with *phenaka* every third day. It was considered auspicious to look into a mirror (*darpaṇa*,[1] *ādarśa*[2]) or clarified butter in the morning (*YY*, II.23). Mirror, normally circular in shape (Fig.16),[3] formed one of the articles decorating Indra's banner (XLII.57), and Ekānaṁśā, a Vaiṣṇava goddess, was shown holding a looking glass in one of her hands (LVII.39). A glance at it on the eve of a journey was taken to augur good luck (*TT*, IX.11; *YY*, XIII.10). That mirrors were often highly polished and glossy will appear from the alusion to a mirror removing the darkness of a room by means of solar rays reflected in it (IV.2). Elsewhere, he refers to a mirror with a spot caused by hot vapoury breath blown on it (V.50).[4]

1. LV.2; V.50; XI.13; LVII.39; *YY*, II.23.

2. XLII.57; *YY*, XIII.10; *TT*, IX.11.

3. XI.13. Female figures in sculpture occasionally hold 'a flat, small, circular mirror with a long projecting handle.' Cf. Rajendra Lal Mitra, *Indo-Aryans*, Vol. I, p. 260.

4. Mirrors were probably made from polished metals; but the possibility of their being fabricated from glass (*kāca*, XLI.8, 10; LXXXVI.23) cannot be ruled out. In Ceylon, 'which borrowed all the arts of civilized life from the Hindus', glass mirror was already known in the third century B.C. We know from Pliny (*Lib.* XXXVI, C. 66) that Indian glass was fabricated from pounded crystal and was therefore, superior to all others. The *Periplus of the Erythraean Sea* (p. 45) informs us that Indian ports imported crude glass in the first century A.D. Cf. R.L. Mitra, *Indo-Aryans*, I, p. 241.

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VII

FURNITURE AND MISCELLANEOUS MATERIALS

I. *Furniture*

Forming one of the commonest requisites of a household, furniture was technically known as *śayanāsana*[1] or *śayyāsana*,[2] corresponding to Pāli *senāsana*, literally meaning bedstead and seat. The Śayyāsana-lakṣaṇādhyāya (Ch. LXXVIII) of the *Bṛhatsaṁhitā* affords some imteresting information regarding furniture. Being the chief concern of wood-workers' art, the first question to be discussed in any account of furniture should be the selection of trees, the wood whereof can be employed in fabricating it. Our author throws welcome light on this question. Unfit for use in furniture was the timber of trees growing on a cremation ground, river-confluences, near a temple, by the road-side; *caitya-vṛkṣas*, those that are withered at the top, entwined by creepers, and thorny; those that contain birds' nests or bee-hives; those that are felled by thunderbolt, rain, wind or elephants; and that have fallen down in a westerly or southerly direction (LXXVIII.4-5).[3] In case the timber had been cut formerly, it was to be re-examined at the commencement of the work (LXXVIII.6). The trees most esteemed for fashioning bedsteads and seats were *asana* (*Pentaptera tomentosa*), *spandana* or *syandana* (*Dalbergia ongeinensis*), *candana* (*Pterocarpus santalinus*), *haridra* (*Mesua ferrea* ?), *suradāru* (*Pinus Deodaru*), *tindukī* (*Diosperos glutinosa*), *śāla* (*Shorea robusta*), *kāśmarī* (*gambhar*, *Gmelina arborea*), *añjana* (*Micheelea champaka*), *padmaka* (a Nepalese timber tree yielding a red wood), *śāka* (teak, *Techtona grandis*), and *śiṁśapā* (*Dalbergea sisu*).[4] The use of 1, 2, 3 or 4 kinds of timber in one and the same article was allowed, while that of 5, 6, 7 or 8 was believed to forebode calamities (LXXVIII.38-9).[5] Some rules were observed with

1. II, p. 73; LXXVIII.1, 5, 18.
2. Title of Ch. LXXVIII; LXXXVIII.1.
3. Cf. *Viśvakarma-prakāśa*, X.51-2.
4. LXXVIII.2. Cf. *Viśvakarma-prakāśa*, X.50.
5. Cf. *Ibid*, X.90-91.

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regard to the combination of the wood of certain trees. Thus the timber of *tindukī* and *siṁśapā* was not joined with any other wood; that of *devadāru* and *asana* was not combined with *śrī-parṇa*; *śāla* and *śāka* were used jointly as well as separately; so were *haridra* and *kadamba*; *spandana* and *amba* were not used alone; *asana* combined with another wood was supposed to cause many troubles. Legs of *spandana* were preferred in couches and seats fashioned from *amba*, *spandana* and *candana*. The timber of all fruit-bearing trees was considered very auspicious (LXXVIII.15-8). Timber with profusion of holes and knots was taken to be unfit for all purposes.[1]

Ivory was used for decoration work in association with all the trees enumerated above (LXXVIII.19, 20-6).[2]

ITEMS OF FURNITURE. As suggested by the word *śayanāsana*, furniture was of two kinds, viz., *śayana*, meant for lying and *āsana*, meant for sitting. We have references to *śayana*[3] or *śayyā*,[4] bed and bedstead as a whole; *khaṭvā* (LXVIII. 29), cot; *paryaṅka* (LXVIII. 22), couch or high seat; *āsana*,[5] a seat; *bhadrāsana*[6] or *bhadrapīṭha*,[7] throne; *pīṭha* (*BY*, XXXII. 13), a seat or stool; *upadhāna*,[8] pillow; *śayanācchādana* (CIII.8) or *śayanāstaraṇa* (CIII.23), bed-sheet.

ŚAYYĀ. We get measurements of couches meant for the king, prince, minister, army-chief and royal priest. The king's couch, we are told, should be 100 digits[9] long; that of prince,

1. LXXVIII.32-7. Cf. *Viśvakarma-prakāśa*, X.84-9. Varāhamihira gives technical names of holes of various shapes. A hole hollow in the middle and narrow at the mouth was called *Niṣkuṭa*; a hole of the size of *niṣpāva* or black gram grains and blue in colour was styled *Kolākṣa*; *Sūkara-nayana* is uneven, colourless and extends over 11 joints; *Vatsa-nābha* denotes a breach covering one joint ; *Kālaka* is a black hole; *Dhundhuka* is also dark but cut. A hole of the same colour as wood was not deemed so inauspicious.

2. *Viśvakarma-prakāśa*, X.71 is identical with *BS*, LXXVIII.19. Kālidāsa (*Raghuvaṁśa*, XVII.21) refers to ivory seat and the *Daśa-kumāra-carita* mentions bedsteads with ivory supports shaped like a lion.

3. LXXIII.1; LXXVIII.1, 5, 18, 26.
4. XLV.22; LXX.9; LXXXVIII.1, 20; XCIV.12; *BY*, XXXII.13.
5. LXIX.10; LXX.9; LXXVIII.1, 5, 18; LXXXVIII.1.
6. XLVII.46-7; LIX.7; *BY*, XVII.7; *YY*, VII.8.
7. *Ibid.*, XIII.11.
8. LIX.7; LXXVII.15; *BY*, XVI.3.
9. Digit (*aṅgula*) here denotes the distance covered by eight husked

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90; of minister, 84; of army-chief, 78; and of the priest, 72; half of the length lessened by 1/8th gives their width. The height of the supports (*pāda*) inclusive of the middle (*kukṣya*) and top (*śiras*) portions is said to be 1/3rd of the length.[2] The frame consisting of four wooden beams, one each on head-side and foot-side and two on two sides, was known as *īṣā*. Two holes were made at the ends of each of the two shorter beams and the side beams were then fixed into them. In doing so a definite order was followed. In the tip (*agra*) of the head beam was thrown the foot (*mūla*) of the right side beam; the latter's tip was fixed into the foot of the foot-side beam; the latter's tip was fitted in the foot of the left side beam; the latter's tip was joined with the foot of the head-side plank. It was known as *pradakṣiṇāgra* order. Following a sequence contrary to it (*apasavyāgra*) or laying the tips of head and foot-side planks in the same direction (*ekadigagra*) was forbidden and supposed to cause fear from ghosts.[2] Proper care was taken to see that

barley grains placed breadth-wise touching each other. It is styled *karmāṅgula*, a practical digit:—

कर्माङ्गुलं यवाष्टकमुदरासक्तं तुषैः परित्यक्तम् ।

LXXVIII.8.

1. अङ्गुलशतं नृपाणां महती शय्या जयाय कृता ॥
नवतिः सैव षड्ना द्वादशहीना त्रिषट्कहीना च ।
नृपपुत्रमन्त्रिबलपतिपुरोधसां स्युर्यथासङ्ख्यम् ॥
अर्धमतोऽष्टांशोनं विष्कम्भो विश्वकर्मणा प्रोक्तः ।
आयामत्र्यंशसमः पादोच्छ्रायः सकुक्ष्यशिराः ॥

LXXVIII.8-10.

Cf. *Viśvakarma-prakāśa*, X.57-61.

2. ईषायोगे दारु प्रदक्षिणाग्रं प्रशस्तमाचार्यैः ।
अपसव्यैकदिगग्रे भवति भयं भूतसंजनितम् ॥

LXXVIII.27.

Cf. Utpala—

ईषाशब्देन चत्वारि काष्ठानि घटितान्युच्यन्ते । शिरः पादभागयोर्द्वौ वामदक्षिणभागयोर्द्वाविति । तेषां परस्परं यत्र संयोगः शिरः पादकाष्ठयोर्द्वे छिद्रे कृत्वा वामदक्षिणपादकाष्ठानि तेषु क्षिपेत् । तत्रायं क्रमः ।... पूर्वोक्तविन्यस्तस्य शिरःकाष्ठस्य यदग्रं तत्र दक्षिणदिक्स्थकाष्ठमूलं क्षिपेत् । तस्याग्रे पादान्तभागस्थं काष्ठमूलं क्षिपेत् । तदग्र उत्तरदिग्भागस्थ-

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supports were not laid topsy-turvy (*avākśiras*, LXXVIII.28) The legs were divided into five parts from top to bottom technically known as *śiras* (head), *kumbha* (pitcher), *jaṅghā* (shank), *ādhāra* (base) and *khura* (hoof). The *kumbha* was so called evidently because of its being fashioned like a pitcher. It is referred to as *āmalaka* in Buddhist literature and is depicted in some sculptures from Amaravati and Nagarjunakonda[1] (Fig. 17). All the five parts are distinctly represented in the Kuṣāṇa art (Fig. 18). A big hollow or discoloured knot in these parts as also the one occurring at a third of the length of the side-beams and cross-beams was considered inauspicious (LXXVIII. 29-31).

PARYAṄKA (LXXVIII.11-4). From the manner of its mention, *paryaṅka* seems to denote a seat. *Paryaṅkas* were usually made from the timber of a single tree. The costly *paryaṅka* meant for royal use was fabricated entirely from sandal wood, covered with gold and decked with variegated jewels.[2] According to the *Mānasāra*, *paryaṅka* admits of nine varieties on account of its width ranging from 21 to 37 *aṅgulas*, with successive increase of 2 *aṅgulas* each.[3] Its numerous varieties are illustrated in sculptures from Amaravati and nagarjunakonda. We have square, rectangular and circular seats with or without arm-rests and back.[4]

BHADRĀSANA. It was a royal seat fashioned from gold, silver, copper or a milky tree. It was to be 1, 1¼ and 1½ cubits in height according as it was meant for a feudatory chief

काष्ठमूलं क्षिपेत्। तदग्रे शिरः काष्ठमूलं क्षिपेत्। एवं पूर्वदक्षिणपश्चिमोत्तर-संस्थानेन न्यासे कृते प्रदक्षिणाग्रं भवति। ... शिरः पादभागकाष्ठयोरेकस्यां दिश्यग्रं यद् भवति तदैकदिगग्रम्।

1. C. Sivaramamurti, *Amravati Sculptures in the Madras Govt. Museum*, p. 136, Pl. XII, figs. 1-2; A. V. Naik, studies in Nagarjunakonda Sculptures, *Bulletin of the Deccan College Research Institute*, II, Nos. 1-2, p. 291, fig. 3, p. 292, figs. 7-8.

2. केवलचन्दनरचितं कांचनगुप्तं विचित्ररत्नयुतम्।
अध्यासन् पर्यङ्कं विबुधैरपि पूज्यते नृपतिः॥ LXXVIII.14.

3. P. K. Acharya, *Indian Architecture*, p. 62.

4. C. Sivaramamurti, *Amaravati Sculptures*, Pl. XII; A. V. Naik, Studies in Nagarjunakonda Sculptures, pp. 291-3, Figs. 1-17. For a large number of illustrations see N.P. Joshi in *Maithilišaraṇa Gupta Abhinandana Grantha*, pp. 894-902.

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(*māṇḍalika*), conqueror of adjoining principalities (*anantarajit*), and for one aspiring to be a universal monarch (*samasta-rājyārthin*).[1] It was also called *bhadrapīṭha* (*ŶŶ*, XIII.11). In ceremonious ablutions, i.e., *Puṣyasnāna*, *Vijayasnāna*, *Nakṣatravijaya snāna*),[2] the king sat on a *bhadrāsana* placed over the skins of certain animals. It appears from the *Rāmāyaṇa* (II. 26.17) that it was a sign of royalty and carried by an attendant in front of the king.[3]

II. *Utensils*

We come across household vessels (*bhājana*,[4] *bhāṇḍa*,[5] *pātra*[6]) made of gold (*BY*, XVII.10), silver (*Ib.* LXXX.26), crystal (LXVII.89; *ŶŶ*, V.36), earthenware (LII.92; *BY*, XVII. 10), iron (XLI.11; LXXVI.2) and horns (*BY*, IV.22; *ŶŶ*, VII.12). They were decorated with multi-coloured patterns (*citra-bhāṇḍa*, X.10). Varāhamihira refers to (1) *kalaśa*,[7] a small pitcher, that with unburnt bottom (*akāla-mūla*) being regarded as especially sacred (XXIV.7; *BY*, XVII.4); (2)

1. भद्रासनमेकतमेन कारितं कनकरजतताम्राणाम् ।
क्षीरतरुनिर्मितं वा विन्यस्यं चर्मणामुपरि ॥
त्रिविधस्तस्योच्छ्रायो हस्तः पादाधिकोऽर्धयुक्तश्च ।
माण्डलिकानन्तरजित्समस्तराज्यार्थिनां शुभदः ॥

XLVII.46-7.

According to T.A. Gopinatha Rao (*Elements of Hindu Iconography*, Vol. I, Pt. 1, p. 20, Pl. VI.6), the height of *Bhadrāsana* is divided 'into sixteen parts of which one forms the thickness of the *upāna* or the basal layer, four of the *jagatī* or the next higher layer, three of the *kumuda*, one of the *paṭṭikā*, three of the *kaṇṭha*, one of the second *paṭṭikā*, two of the broader *mahāpaṭṭikā* and one of the *ghṛta-vāri*, the topmost layer'. *Bhadrapīṭha* may be either circular or rectangular.

2. XLVII.46-7; *BY*, XVII.7; *ŶŶ*, VII.8. Cf. *Harṣa-carita*, VII, pp. 273-4.

3. Kālidāsa represents Kuśa's son Atithi as sitting on a *bhadrāpīṭha* at the time of his coronation. Vide *Raghuvaṁśa*, XVII.10.

4. LXXX.26.

5. XXVIII.5; XLI. 8; X.10; LXXXVIII.1.

6. LII.92; LXXVI.2; XCII.8; L.18.

7. XXIV.7; XLIII.20; XLVII.37; LV.26; LXVII.46.

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kumbha,[1] a large pitcher, fashioned from clay or costly metals like gold and silver (*BY*, XVII.10); (3) *ghaṭa*,[2] a big jar hollow in the middle and narrow at the mouth[3] (*Ghaṭavat suṣiraṁ madhye saṅkaṭam=āsye ca*, LXXVIII.33), that made from crystal being mentioned in LXVII.89 and *YY*, V.36; (4) *kamaṇḍalu* (LVII.39, 41), a gourd or water-vessel made of wood or clay; (5) *kusūla* (XCVI.6; *BY*, XXXII.13), a large earthenware pot for storing grain;[4] (6) *darvī* (XLV.62), a ladle; (7) *sruk* (XLIII.12), a sacrificial ladle fashioned from gold or silver; (8) *piṭhara* (LXVII.18), a water-pot[5] of fragile material so that it could be easily heated in the sun (*sūrya-tapta-piṭhar-āmbu-pāyinaḥ*, XXIV.30); (9) *śarāva* (XLVII.36), a shallow dish or platter of clay;[6] (10) *bhṛṅgāra*,[7] a golden water-pot which was regarded as very auspicious (11) *dṛti* (*YY*, I.4), a large leather bag for storage of water;[8] (12) *viṣāṇa-koṣa* (*YY* VII.12; *BY*, IV.22), a vessel made from the tusk of an elephant

1. IV.1; XXIV.26-27 ; XLII.35; LII.109; LXIX.17; LXX.13.

2. III.31; IV.4; LXVII.18, 80.

3. The phrase '*svastikair=ghaṭaih*' occurring in LV.15 is taken by the commentator to mean 'pitchers shaped like *Svastika*'.

4. A pot filled with corn is referred to in L.18.

5. *Amara* II.9.31 regards it as synonymous with *sthālī*, a cooking pot.

6. An unbaked earthen lamp is mentioned in LII.92. LXXXVIII.1 (*kulālādi-bhāṇḍāny=abhuktāny=abhinnāni*) seems to suggest that earthen pots were broken after use.

7. In Utpala's language it was called '*dāmdānī damanī*' (on LXXXVII. 6). According to the *Rāja-taraṅgiṇī* I.128, it was a golden cup closed at the mouth with a lid. The *Mārkaṇḍeya-purāṇa*, VIII.207 seems to suggest that like parasol *bhṛṅgāra* was also regarded as an emblem of royalty. According to Bhoja's *Yuktikalpataru*, it was to be used in consecrating the king and made of gold, silver, clay, copper, crystal, sandalwood, iron and horn—

राज्ञोऽभिषेकपात्रं यत् भृंगार इति तन्मतम् ।
तदष्टधा तस्य मानमाकृतिश्चापि चाष्टधा ॥
सौवर्णं राजतं भौमं ताम्रं स्फाटिकमेव च ।
चान्दनं लौहजं शार्ङ्गमेतदष्टविधं स्मृतम् ॥

Quoted in the *Śabda-kalpadruma* under '*bhṛṅgāra*'. Some spouted vessels with a narrow neck and with or without a side-handle depicted in Amaravati sculptures are taken by C. Sivaramamurti to illustrate Pāli *bhiṅkāra* or Sanskrit *bhṛṅgāra*. Cf. *Amaravati Sculptures*, p. 42, Pl. V, Figs. 1 18, 19, 22, 27, 30.

8. We are told that even a single hole suffices to drain off its water. Cf. *Manu*, II.99.

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or the horn of a bull meant for keeping *ghee* and honey for ceremonial ablutions.[1]

Of other household articles (*upaskara*, XI.42; XLV.62),[2] Varāhamihira refers to the fan (*vyajana*, LXIX.10; *YY*, VIII. 4), the winnowing basket (*śūrpa*, XLV.62; LXVII.3) and lamp (*dīpa*) with its wick (*vartti*) and oil (LXXXIII.1-2), nails (*kīlaka*, LII.58), the wooden mortar (*ulūkhala*, LXVII. 47), the razor for shave (*kṣura*, XCVII.12, 13, 14), the axe (*paraśu*, XLII.19) for cutting wood, the rope (*rajju*, XLII.66; L.14; XCIV.40), the leathern thong (*varatrā*) and the iron chain (*śṛnkhalā* LXXXVIII.1).

The water-clock (*ambu-yantra*[3], *jala-yantra*[4]) and the sundial (*chāyā-yantra*[5]) were used for measuring time.

1. Probably the same as the *koṣa-kalaśa* mentioned in the *Harṣa-carita*, VII. V.S. Agrawala explains it by '*kalaśa* filled with *koṣā*' (*Harṣa-carita, A Cultural Study*, p. 178), which gives no sense.
2. It mentions ladle and winnowing basket as *upaskara*.
3. II.3; *By*, VI.4; *Ty*, III.4.
4. II, p. 40.
5. II. 3.

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VIII

FAMILY AND OTHER SOCIAL HABITS

FAMILY. Family was the smallest unit of social organisation. Joint family system was the prevailing order of the day. Families were often very large (*mahākula*, XVII.4; *YY*, IV.58; XV.1). The son continued to live with his parents and brothers even after marriage (LXIX.20). Family relationships included father (*pitṛ*, LXVII.13; *YY*, IV.47; *janaka*, LXVII.15), mother (*mātṛ*, L. 26; *janitrī* LXXIII.11; *YY*, IV.17; *jananī*, *YY*, V.38), sons (*putra*, L. 25; LII.75; CII.12; *tanaya*, CII.2; *ātmaja*, CII.5; *suta*, LII.73-5), daughters (*kanyā*, LXVII.13), grand-sons (*pautra*, CII.12), grand-father (*pitāmaha*, II.2,) husband (*pati*, LXIX.20; *bhartṛ*, *YY*, V.31), wife (*jāyā*, LXXIII.11; *YY*, V.31; *bhāryā*, L. 25; *dārā*, LXXXIV.3; C. 2; *kalatra*, C. 11; *patnī*, L. 26; *VP*, 19, 34), brothers (*bhrātṛ*, L. 26), sisters (*bhaginī*, L. 25), husband's brother (*devara*, LXIX.20), brother's wife (L. 26) and maternal uncle (*mātula*, CIII.61). People were very eager to have their houses filled with children and grand-children.[1] Family-members were tied together by bonds of mutual love and affection; their relations were normally cordial; but there were some who cut asunder ties with their kith and kin, killed their own relatives and wandered in foreign lands (CIII.39). Being most worried about the well-being of her children, the mother was held in high esteem (LXVII.91; *YY*, V.38). There is a reference to large families breaking up because of dissensions amongst their members (*YY*, IV.58). Birth in a good or bad family determined the social status of an individual (VIII.10; XV.16, 27; *BY*, XV.1). An individual was supposed to represent his family whose character could be judged by his own conduct (*YY*, V.35).

EDUCATION. The four traditional *vidyās*, viz., *vārtā* or economics, *trayī* or the three Vedas, *daṇḍa-nīti* or polity, and *ānvīkṣikī* or philosophy, as also metaphysics (*adhyakṣara*), are mentioned in XIX.11. Varāhamihira mentions grammarians (*vyākaraṇābhiyukta*, *YY*, V.6), *mīmāṁsakas* (*YY*, IV.24), poets

1. Cf. LXXV.1; LXXVII.25; *BJ*, IV.11.

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(*kavi*, V.39; X.3, 17; XVI.18; XIX.12; XXXII.11; *kāvyajña*, *YY*, V.6) and the gatherings of poets (*kāvyajña-goṣṭhī*, *YY*, V.6) and scholars (*viduṣāṁ samavāya*, *YY*, V.7). It is remarked that one well-versed in grammar alone is laughed at in a poets' gathering. A student frequently changing teachers is alluded to with pointed scorn (*YY*, IV.3),[1] whereas one revering his teacher is complimented (*YY*, IV.40).[2] *YY*, IV.26 states that the learning of a poor man comes to an end owing to family worries. A tree (i. e. bark or leaf), palm-leaf, cloth, lotus-leaf, reeds, leather and silk (*paṭṭa*) are named as writing materials (LXXXV.76).

MORALITY. The standard of sex morality, particularly of women, was considerably high; but there are found some uncomplimentary remarks which may be recorded here. There are several references to men[3] and women[4] indulging in illegitimate love. Varāhamihira alludes to men having sexual intercourse with other species (*nṛṇāṁ c-ā jāti-maithunāt*, LXXXV.66) and Utpala tells us that men actually had sexual union with mares, etc.[5] While composing his chapter on the transit of planets (*BS*, CIII) in varied metres, Varāhamihira doubts whether or not his work would receive due admiration from the scholarly world in the presence of Māṇḍavya's metrical treatise. 'I am afraid', says he, 'my composition may not be appreciated by those who have heard that of Māṇḍavya; but not so, for men do not like their chaste wives so much as courtesans.'[6] We also hear of women gratifying their lust with the help of ladies posing as men.[7]

1. Varāhamihira directs that *YY* should not be taught to a pupil who has stayed only for a short time with his teacher.

2. It is said that a student knows *śāstras* by revering his teacher- *Chātras sutīrthān guru-pūjay-eva.*

3. LXXIII.12; C. 2; CIII.3, 45, etc.

4. *YY*, V.12, 33, 34, etc.

5. यतो नरा. . . अजातौ वडवादिषु यान्ति. Cf. *Manu*, XI.174 which prescribes atonement for sexual intercourse with other species.

6. माण्डव्यगिरं श्रुत्वा न मदीया रोचतेऽथवा नैवम् ।
साध्वी तथा न पुंसां प्रिया यथा स्याज्जघनचपला ॥ CIII.3.

7. स्त्रीभिः स्त्री मदनविषानलप्रदीप्तं
संशान्तिं नयति नराकृतिस्थिताभिः । *BJ*, XXIV.7.

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PASTIMES. People amused themselves in various ways. Varāhamihira refers to skilled dancers (V.73; X.3), wrestlers (XV.19), jugglers and magicians (XVI.18, *indrajālajña*; *kuhaka-jīvaka*), jesters (*hāsyajña*, XIX.12), gamblers (*dyūtajīvin*, IX. 34; *kitava*, X.6) and actors (*raṅgopajīvya*, IX.43). Bull-fighting (XLVII.44;[1] LXXXVI.22[2]) and cock-fighting (LXII.2) were also in vogue. Then there were festivals when roads were swept, decorated with variegated flags, arches, and garlands and flanked by beautifully attired courtesans, shops were decorated and squares filled with actors, dancers and musicians (XLII.25-6). They provided opportunities to young men and women to come closer (LXXVII.11). Children played with toys (*bāla-krīḍanaka*, YY, IV.19) and clapped to express joy (XLII.28). In the rainy season, they took delight in erecting miniature clay constructions on roads (XXVIII.5).

ETIQUETTE AND EXPRESSIONS. People were required to observe restraint in speech before elders. Thus a man approaching his grandfather and describing his mother as possessing harlot-like qualities is reproached (II.2). It was against the then etiquettes to sleep above grains, cows, elders, fire and gods and on a bed stretched diagonally, with the head turned to the north or west, with wet feet[3] and naked[4] (LII. 122). Guests, friends and relatives were respected and food was shared with them (XIX.18).

That facial expression varies according to mental frame is stated in CIII.56.[5] That a man afraid of his enemies moves fast is recorded in CIII.20.[6] CIII.15 says that the wealthy pay no heed to others' facial expressions. There are references to the whistling sound produced from the mouth (*kṣveḍā*)[7] and to that produced by keeping an arm on the breast and then

1. It refers to a fighting bull.
2. *Usrā-krīḍaka*, 'bull-fighter'. Utpala splits it into '*uśrā*' and '*krīḍaka*' and treats them as unconnected, but without any justification.
3. Cf. *Manusmṛti*, IV.76.
4. Cf. *Ibid*, IV.75.
5. मनोवृत्तिसमायोगाद् विकार इव वक्त्रस्य ।
6. नृपतिशत्रुभयशंकितचित्तो द्रुतपदं व्रजति ।
7. क्ष्वेडा मुखशब्दः शोडनिकेति प्रसिद्धः ।

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beating it with the other hand (*āsphoṭita*[1], XXXIII.23; LXXXV. 39). The king sat in the Hall of Justice (*dharma-sabhā*) with his right hand raised above (*YY*, II.27).[2]

1. आस्फोटितं करशब्दः, वक्षःस्थस्य बाहोर्द्वितीयहस्तेन ताडनम् ।
2. Cf. *Manusmṛti*, VIII.2.

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CHAPTER V

ECONOMIC LIFE

I

AGRICULTURE, ARBORI-HORTICULTURE AND FLORA

The Gupta period is one of the most prosperous ages that India ever witnessed. The unification of a large part of the country under the Guptas and consequent peace hastened the pace of all round economic progress. Extensive agricultural operations, brisk inland and overseas trade and exploitation of mineral resources, all contributed their share to this general opulence. Brought up at Ujjayinī, one of the prominent centres of Gupta culture, our astronomer gives us many particulars about the economic condition of the age.

A. *Agriculture*

In spite of the enormous industrial growth which marked the period, Indian economy was mainly agricultural, as it is even now. Agriculture was the mainstay of the masses and was regarded as one of the chief connotations of *vārtā*, a general name for the science of economics (XIX.11). Agricultural operations were quite elaborate. Fields were marked off from one another by means of artificial boundary lines (XIX.8), probably raised earthen platforms or thorny fences. The plough[1] drawn by oxen (XLV.62) was employed for tilling the soil. Then seeds were sown (LII.96). A good cultivator was advised to undertake cultivating operations like sowing at an auspicious moment.[2] When the crop was ready,[3] it was

1. XV.9, 10; XXXIII.9; XLV.62; LVII.36; LXVIII.17; LXIX.2; LXXXV.46.

2. Seeds should be sown when the moon passes through any of the four fixed (*dhruva*) asterisms. i.e. Uttarāṣāḍhā, Uttarabhadrapadā, Uttaraphalgunī, Rohiṇī (XCVII.6), and in the *karaṇa* called Gara (XCIX.4). It was believed that seeds sown at the time of the moon's passage through the south of Jyeṣṭhā, Mūla, Pūrva, and Uttarāṣāḍhā would perish (IV.5) which implies that sowing was undertaken during the moon's passage through the north of these asterisms.

3. VIII.12-13.

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harvested and piled[1] on the threshing floor (XXXIII.21) where it was threshed and pounded. Having been husked by a winnowing basket (*śūrpa*, XLV.62; LXVII.3), the grain was stored in a granary. Paddy appears to have been stored without being husked as at present and was consequently known as husk-corn (*tuṣa-dhānya*).[2]

We have numerous references to rivers, canals, tanks, and wells which must have been utilised for artificial irrigation. The cultivation of the soil, however, depended on rains to a great extent.[3] Varāhamihira, therefore, makes elaborate meteorological observations which have been discussed elsewhere.[4]

CROPS. Two crops were usually raised within a year and the rotation of crops was known. Thus, according to the priority or posteriority of the time of sowing, there were two main crops, *pūrvasasya* and *aparasasya*, sown early in rain and autumn respectively,[5] They correspond to the present *Kharif* and *Rabi*. Crops derived names from their ripening and harvesting seasons also. Broadly speaking, the *pūrvasasya* chiefly consisting of paddy would be ripened in autumn and consequently known as autumnal crop.[6] The *aparasasya* mainly comprising wheat and barley would be ready in summer and termed as summer crop.[7] That only these two were the main

1. XXXIX.14 (*saṅgraha-kāla*).
2. XV.4, 7, 11, 27; XVI.4; XL.4.
3. *Prāvṛtkālasya c-ānnam=āyattam*, XXI.1. Also cf. XIX.2.
4. Vide my paper 'Textual Evidence bearing on Rainfall in Ancient India', *JOI*, IX (1960), pp. 407-418.
5. VIII.13. Elsewhere '*aparasasya*' and *pūrvasasya* are referred to as *pūrvajāta* and *paścādupta* respectively, for *pūrvasasya* is sown after *aparasasya* is harvested (XXXIX.9). These also correspond with the *pūrvavāṭa* and *paścādvāpa* of the *Arthaśāstra* which also knows an intermediary crop called *madhyavāpa*. *Pūrvavāpa*, according to Kauṭilya, includes all the crops that are sown at the commencement of the rainy season, e.g., paddy, *kodrava*, sesamum, *priyaṅgu*, *dāraka* and *varaka*; *madhyavāpa* comprises green gram, black gram and *śaibya* which are cultivated in the middle of the same season; *kusumbha*, *masūra*, *kulattha*, barley, pea, linseed and mustard which are sown in autumn came under the category of *paścādvāpa*, cf. *Arthaśāstra*, II.24, p. 116.
6. V.21, 27, 78, 90; X.18; XXV.2; XXVII.2 (spurious); XXXIX.1, 12, 14; XL.3; IX.42; XV.15; XCIV.4; CIII.63.
7. CIII.47; IX.43; XXV.2; XXXIX.1, 13; XL.2; XLI.3. The word *grīṣma* is somewhat loosely employed, for barley, wheat, etc. are actually harvested in spring and not in summer.

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crops grown in our period is evident from the fact that while dealing with predictions regarding the growth of crops, Varāhamihira takes only summer and autumnal crops into account.[1]

BOTANICAL CLASSIFICATION. Varāhamihira also refers to a botanical classification according to which all the awned or bearded grains were styled as *śūkadhānya* (L. 30), while those growing in pods or legumes were termed *kośa-dhānya* (VIII.8) or *śamī-jāti* (VIII.10). They correspond to the modern botanical classes of mono-cotyledons and di-cotyledons respectively. The category of *śūka-dhānya*, according to Caraka,[2] included numerous varieties of rice, millet, barley, wheat and similar other cereals. *Śamī-jāti*, on the other hand, comprised different varieties of pulses as green gram, black gram, black eye pea, horse gram, moth gram, chick pea, lentils, vetch-ling, peas, sesamum[3] legumes, pigeon pea, babchi seeds, senna seeds, lablab, sword bean, linseed and cowage. Some of the pulses growing on creepers formed a separate group of their own called *vallīja* (XIII.13; XVI.24).

All land was not fit for proper growth of corn. It was, thus, recognised that a sub-soil water-vein running under a field makes the crops that have grown perish (LIII.61). Similarly, it is stated that water only four cubits below the surface of the soil prevents the seeds from sprouting and makes the grown up crops wither away (LIII.895).

AGRICULTURAL PRODUCE. I. *Śūkadhānya.* Many crops were cultivated during our period. Varāhamihira vaguely

1. Ch. XXXIX. A vernal crop (*vāsanta sasya*) is also mentioned, (XXVII.2); but the chapter in which it occurs is spurious. S. K. Maity is certainly wrong in inferring from VIII.12 and VIII.8-9 that certain crops were duly ripened in Śrāvaṇa and Caitra or Vaiśākha (*Economic Life of Northern India in the Gupta Age*, p. 79, fn. 8 & 10), for the verses in question do not refer to months, but to the years of Jovian cycle denoted by those names. Similarly, he takes the term *śārada* in V.78, 90 to mean the grain sown in autumn (*ibid*, p. 79, fn. 9), which is not correct. The word is invariably used by Varāhamihira in the sense of corn ripening in autumn and the commentator so understands it everywhere.

2. *Caraka*, Sūtrasthāna XXVII.8 ff. Cf. *Amarakoṣa*, II.9.24 and the verse from the *Ratnakoṣa* enumerating *śamī-dhānyas* cited by Bhānuji Dīkṣita on the above.

3. The legume (*nāla*) of sesamum is referred to in LIII.115. Cf. Utpala—*tilānāṁ nālaṁ yasminnabhyantare tilā bhavanti.*

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refers to rice-producing areas[1] but without specifying them. We get references to the following varieties of rice.

1. *Śāli*,[2] corresponding to the replanted variety now called *jaḍahan*. According to Utpala, it is the most nourishing corn (*sāra-dhānya*) mentioned by Varāhamihira (XV.24).

2. *Kalamaśāli* (XXIX.2), a variety of rice sown in May or June and ripened in December or January.[3] It was considered to be one of the best varieties (*uttama-dhānya*, XV.5 ; *śobhana-dhānya*, XV.10; *dhānya-vara*, XIX.6).[4]

3. *Yavaka* (XXIX.3; L. 30).[5]

4. *Sūkaraka* (XXIX.2), hog's rice. It is not mentioned in any other older or contemporary work known to me.

5. *Ṣaṣṭika* (L. 30; LXXV.8), so-called because it takes sixty days for ripening. Suśruta (I.46.8) and Caraka (I.27. 13) refer to several kinds of *ṣaṣṭika*. Utpala thinks it is "the kings' corn" (*rāja-dhānya*) mentioned in XV.12 (*rāj-opayogi yad dhānyaṁ ṣaṣṭik-ādi*). Yuan Chwang[6] refers to a kind of rice grown in Pārīyātra (Bairaṭ) that was ready for cutting in sixty days' time. It is now known as *saṇṭhā*.

6. *Raktaśāli* (XXIX.2), red rice, probably *oryza sativa*.[7] It occupies the first place in the *Caraka* and *Suśruta* list of *śūka-dhānyas* and is regarded as the best variety of rice.[8]

7. *Pāṇḍūka* (XXIX.2), yellowish rice.[9]

8. *Gauraśāli* (YY, VII.4), white rice.[10]

9. *Niṣpāva* (XVI.33; XL.5; LXXVIII.33). In two of the three references, Utpala takes it to mean *śāli* (XVI.33; LXXVIII.33). In the remaining case, however, he informs[11]

1. V. 39; VIII.30; XIX.16.

2. V. 39; VIII.30; XV.6; XVI.7; XIX.6, 16; XL.3; L.30; *BṬ*, IV. 23-27.

3. Monier Williams, *Sanskrit-English Dictionary*, under *Kalamaśāli*.

4. Utpala invariably renders these phrases by *kalama-śāly=ādi*. Also cf. *Caraka*, I.27.8, II; *Suśruta*, I.46.4.

5. Also mentioned by Pāṇini and Caraka (I.27.12).

6. *On Yuan Chwang*, I, p. 300.

7. Monier Williams, *Sanskrit-English Dictionary*.

8. *Caraka*, Sūtra, XXVII.8, 11. In *Suśruta*, it is named *lohitaśāli* and *lohitaka* (I.XLVI.4, 6).

9. Cf. *Caraka* I. XXVII.8; *Suśruta* I.XLVI.4.

10. Cf. *Caraka* I.XXVII.8.

11. Utpala on XL.5 :—*Śālaya iti kecit, śimbidhānyam=iti kecit, anūtpannāni yāni punar=jāyante te niṣpāvāḥ.*

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us that some regarded it as synonymous with *śāli* while according to others it denotes a leguminous yield.[1]

Rice and wheat[2] together with barley[3] formed the staple food of the people. *Kodrava*[4] (*Paspalam Scrobiculatum*) and *kaṅgu*[5] or *priyaṅgu*[6] (panic seeds) were also cultivated and eaten by the poor[7] as is the case even now.

II. *Śamīdhānya.* The cultivation of a large variety of pulses was also practised the following of which are named: *mudga* (*Phraseolus Mungo*, V.75; XV.14; XXV.2; XXIX.5; XL.5), *māṣa*[8] (*Phraseolus Radiatus*), *masūra*[9] (*Ervum Hirsutum*), *kulattha*[10] (*Dolichos uniflorus*), *kalāya*[11] (leguminous seed), *oaṇaka*[12] (chick pea).

III. *Oil Seeds.* Of the oil-seeds, *tila*[13] (sesamum), *sarṣapa*[14] (mustard seeds), and *siddhārtha*[15] or *sita-sarṣapa*[16] (white mustard seeds) are referred to. Minced sesamum seeds are also noticed (LXIV.6). Sesamum seeds yielding only half the quantity of oil or no oil at all were taken to forebode great impending calamity (XLV.35).

IV. *Fibrous Plants.* Among the fibrous plants mention

1. Monier Williams (*Dictionary*, p. 563) regards it as *Dolichos Sinensis*, or a species of pulse, perhaps *Dolichos Lablab*.
2. XV.6; XVI.7; XIX.6; XXIX.4; XL.2, 3, 5; XLV.33.
3. VIII.30; XV.6; XVI.7; XIX.6; XL.2, 3; XXIX.4; LXIX.2; LXXIX.10; LXXXVI.4; XLIII.11; XLV.33; LXII.2; *BY*, XVIII.6.
4. XXIX.6; XL.4; LXXVI.2. *Kodrava* is called *kodau* in Hindi.
5. VIII.10; XXIX.4.
6. *BY*, IV.23-4.
7. *Kṣudradhānya*, XXXIV.15. Comm. *Kṣudradhānyānāṁ priyaṅgv=ādīnām.*
8. XV.14; XVI.36; XXV.2; XXIX.4; XL.5; LXXV.8; LXXVIII.3; XCIV.21. L.34; LXXXVI.22; *BY*, IV.23-4.
9. XL.2.
10. XXIX.5; LIII.36, 114; LXXXVI.22; XCIV.21; XL.5; *BY*. IV. 23-27.
11. XL.5.
12. XXIX.5; XV.14; XVI.3; *BY*, XVIII.3-5.
13. V.75; XV.14; XVI.36; XXV.2; XXIX.4; XL.6; L.31; XLVII.30, 35, 77; LIV.2, 7, 17; LXIV.6; LXXV.7.
14. XXIX.5; XL.5; LXXXVI.4; XLV.24.
15. XLIII.5; XLVII.35.
16. LXXIX.12.

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is made of cotton,[1] hemp,[2] and linseed[3]. Cotton and linen cloths are also referred to.

V. *Sugar-cane.* Numerous references[4] testify to the raising of sugar-cane crop on a large scale. There is a reference to sugar-cane forests (*ikṣu-vana*, XV.6) and fields specially suited to the cultivation of sugar-cane crops (*ikṣu-vāṭa*, XIX.6). References to the earth over-grown with both *śāli* paddy and sugar-cane plants[5] suggest the possibility that sugarcane was produced in the same tracts as rice.[6]

FAMINE AND CROP-FAILURE. In spite of so many references to the prosperity of crops[7] and the absence of any recorded instance of famine and a general scarcity of food, we have numerous notices of these calamities in our work.[8] Excessive rainfall is referred to as one of the causes of famine (VII. 40; XLV.38). We learn from the Junagadh inscr. of Skandagupta of the great havoc and distress caused by the bursting of the Sudarśana lake owing to too much rainfall.

For an agricultural community depending on rain-water for irrigating its fields there could be no greater disaster than

1. V.75; XV.9, 14; XXIX.5; XL.3; XCIV.15.

2. XXIX.6.

3. XXIX.6; XL.5; LXXX.7. *Atasī* flower with its dark shade is mentioned in LVII.32 and fruit in LVI.3.

4. XXIX.13; XL.6, 7; XLII.57; CIII.61, 63.

5. *Niṣpanna-śāl-ikṣu-yav-ādi-sasyām*, VIII.30; *śāl-īkṣumaty=api dharā*, XIX.16.

6. Cf. *Raghuvaṁśa*, IV.20 which refers to women sitting under sugar-cane plants and watching rice-fields.

7. III.5; IV.9, 11, 16, 18, 19, 20; 4 V.20, 21, 22, 30, 53, 55, 57, 69, 70, 75, 78, 79, 80, 83, 85, 87, 89, 96; VI.3-4; VII.4, 14; VIII.5, 6, 9, 11, 13, 14, 15, 30, 34, 36, 44, 50, 52; IX.8, 10, 12, 16, 20; XI.8, 14, 29, 37, 38, 43, 44, 45, 46, 47-48, 49, 50; XII.20; XVIII.25; XXIX.12; XXXII.26; XXXIII.10; XXXIV.4; XXXVII.1; XLVI.4; LVII.49; LXXXVIII.1c; XCIV.2, 4, 6; XXI.14, 15, 16; XXIV.20, 23, 24, 33, 36; XXV.2, 5; XXVII.1-2, 6-7.

8. The following are the references to famine or defective crops: III.6, 13, 16-17, 19, 31; IV.5, 14, 16, 18-21, 23, 27, 29; V.21, 23-4, 27, 38-9, 52, 54, 56, 61, 71, 73, 76, 82, 88, 90, 92, 95; VI.9; VII.3, 7, 18; VIII.4, 10, 16, 19, 28, 40, 44; IX.14, 18, 23, 26, 41; X.2, 11, 20; XI.13, 30, 31, 32, 36; XII.18, 21; XVII.4, 5, 17, 18; XIX.1, 8, 19; XX.1, 2; XXIV.23, 30; XXVII.5; XXIX.11; XXX.13, 30; XXXI.1; XXXII. 10, 25; XXXIII.12; XXXIV.12, 14-15, 16; XXXV.4, 5; XXXVIII.4; XXXIX.8-10, XLV.27-28, 38, 42, 44; XLVI.4, 13, 16; LVII.50; LXXVIII. 24; LXXXV.65; XCIV.2, 7, 8, 11.

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drought or insufficient rainfall.[1] It resulted in crop-failure and consequent dearth of food. It had become proverbial to speak of the greatest natural calamity in terms of twelve years' drought (III.28). Yāska, for instance, speaks of a twelve-year drought that occurred in the reign of Śāntanu.[2] The Jain tradition knows of a dreadful famine lasting for twelve years during the reign of Candragupta Maurya.[3]

Acute shortage of food amounting to famine might also be due to the agencies of destruction like war. We have references to the destruction and stealing of crops by enemies and robbers (XIX.8, 19).

Crops were sometimes destroyed by wild beasts and the swarms of mice, insects, locusts and birds (III.28; VIII.4). Too much rain, the absence of rain, the mice, locusts, parrots and foreign invaders were regarded as pests to crops and termed *īti*[4] to which we have many allusions.[5] The practice of employing fowlers and huntsmen for protecting crops from swarms of pests prevalent in earlier period as vouchsafed by Megasthenes[6], it may be assumed, may have been followed in our period also. People believed that all these distresses causing famine were due to some superhuman agency and astrological phenomena.[7]

SUPERSTITIONS. In the present context, it will not be quite out of place to refer to some superstitious beliefs relating to agriculture mentioned in our work. A number of curious methods were practised in predicting good or bad prospects for the growth of crops. One such practice was to determine the prospects of the summer and autumnal crops from the sun's entry into Vṛścika and Vṛṣa respectively. It is elaborately described in Ch. 39.[8] Varāhamihira also refers to the practice

1. III.16; XIX.20-21; XLV.38 (*Durbhikṣam anāvṛṣṭau*).
2. Yāska, *Nirukta*, I.2, 3, 10; *Rgveda*, VIII.5.12.
3. *Cambridge History of India*, Vol. I, p. 147. For other references to 12-year famine see *VIJ*, III (i), pp. 93-98.
4. The following stanza cited by Utpala on V.52 defines *īti*s :—

अतिवृष्टिरनावृष्टिर्मूषकाः शलभाः शुकाः ।
अत्यासन्नाश्च राजानः षडेता ईतयः स्मृताः ॥

5. V.52, 54; VIII.28, 40, 44; XX IV.33; XLV.42.
6. J. Mc Crindle, *Megasthenes and Arrian*, p. 84.
7. For references, vide fns. 7 and 8 on the last page.
8. The summer crop would thrive if (i) at the time of the sun's entry into Vṛścika the *Kendras* (4th, 7th and 10th houses) from him are occupied

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of predicting the prosperity of crops by observing the profusion of flowers and fruits on certain trees (Ch. 29).

Another method of ascertaining future prospects of crops was to keep the sanctified seeds of all types in equal quantities for the whole night of the full moon of Āṣāḍha; such of the seeds as show an increase in weight would thrive, while those that diminish would not flourish and such as neither increase nor decrease would thrive moderately.[1]

B. *Arbori-Horticulture*

Closely connected with agriculture is plant-culture which is elaborately dealt with in the Vṛkṣāyurvedādhyāya (Ch. (LIV). The *Kāmasūtra* (I.3.16) regards it as one of the sixty-four subsidiary arts. Kauṭilya expects his *sītādhyakṣa* (Superintendent of Agriculture) to possess the knowledge of *vṛkṣāyurveda* or seek assistance of persons well-versed in this science.[2] The highly developed state of arbori-horticulture reflected in our work must have been preceded by experiments covering a long period of time. It is interesting to find that some of the practices recorded by our author are more or less followed by Indian peasants even to this day.

by benefics (Mercury, Venus and Jupiter), or the sun is aspected by or is in conjunction with strong benefics; (ii) the sun is posited in Vṛścika, and Jupiter and the moon in Kumbha or Siṁha, or *vice versa*; (iii) Venus or Mercury or both are posited in the 2nd house from the sun situated in Vṛścika; or when the sun in Vṛścika is aspected by Jupiter; (iv) the sun is posited in Vṛścika and the 2nd and 12th houses from the sun are occupied by Mercury and Venus and the 7th by Jupiter and the moon; (v) the 11th, 10th, 4th and 2nd houses from the sun in Vṛścika are occupied by Venus, Jupiter, moon and Mercury respectively; (vi) Jupiter, the moon and the sun are posited in Kumbha, Vṛṣa and Vṛścika and Mars and Saturn in Makara; (vii) the malefics (Mars and Saturn) occupy the 6th and 7th houses respectively from the sun in Vṛścika. The summer crop would perish if the sun is in Vṛścika and (1) the malefics (Saturn and Mars) occupy the 10th and 12th houses or either of them is in possession of the 7th house from Vṛścika; (2) A malefic (Saturn or Mars) in the 2nd house from Vṛścika is unaspected by benefics (3) Mars and Saturn are posited in the 7th and another *Kendra* house (4th or 10th) from the sun in Vṛścika. Similarly, forecasts were made about good or bad prospects of the autumnal crops from the sun's entry into Vṛṣa (XXXIX.1-44).

1. XXVI.1, 10.
2. *Arthaśāstra*, II.24, p. 115.

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Maintenance of public parks[1] constituted one of the charitable acts called *pūrta*.[2] The preservation of plant life was considered to be one of the duties of the state. The *Śukranītisāra* (IV.4.44), for instance, enjoins upon a king to have domestic plants planted in villages and wild trees in forest. Epigraphic records furnish instances of gardens maintained by kings and high dignitaries of the state[3] and the *Yogayātrā* (XVI.16)[4] contains one such reference.

Cities and towns in our period abounded with gardens and parks (LV.8; *YY*, XVII.14). They contained both flower plants and fruit trees. We have references to artificial (*kṛta*) and natural (*akṛta*) gardens (LV.3). Parks were often attached to houses (LIV.3).[5] A park was often provided with an artificial or natural stream in the middle. 'One should', says our author, 'lay out gardens on the banks of water reservoirs, for they do not look lovely without shade on their margins'[6] (LIV.1). Hindus had their temples in the proximity of water and orchards (LV.1-8). Parks also served as venues of religious ceremonies (XLVII.15).

PREPARATION OF THE SOIL AND MANURING. 'A soft soil', it is stated, 'is suited to the growth of all sorts of trees. One should sow thereon sesamum which must be crushed when in bloom. This is the first act in the preparation of the soil' (LIV.2). Besides this form of green manuring even now current in some parts of India, a number of substances and preparations possessing manuring properties are mentioned. Thus cows' (vv, 5, 7, 19), buffaloes' (30), goats' and sheeps' dung (17), clarified butter (7, 15, 19, 24), *uśīra* (7), sesamum (7, 16, 17, 21, 25), honey (7, 24), *viḍaṅga* (7, 15), milk and milk-water (7, 15, 16, 19, 20, 23), mud (5, 15, 25), horse-gram (16), black gram (16, 21, 25), green gram (16),

1. *Udyāna*, XVI.28; XLIV.4; XLVII.15; LV.3; LVIII.2; *ārāma*, LIV.1, 3; LV.2; *BJ*, XVII.4 (*udyāna-sakta*).
2. *HDS*, II, pp. 157, fn. 370, 844, fn. 1992.
3. *ASWI*, IV. Nasik inscr. No. 5, line 2, of Uṣavadāta, p. 99.
4. V. R. Pandit's ed.
5. Cf. *Kāmasūtra*, I.IV.4.
6. Cf. LIII.119, which recommends plantation of certain trees on the banks of a tank. For references to trees on the banks of water-reservoirs, see LV.1, 45; on those of rivers, LV.6-7; LVIII.2; also cf. *Rāmāyaṇa*, III. 15; *EI, IX*, p. 247; *Upavana-vinoda*, verse 1.

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barley (16, 25), groats (17, 21), rice (21), roots of certain plants (22), ashes (24), paste or oil of alangium (27, 29) and cordia (27), fruits, stale meat (21), beef (17) and marrow of hog (20) in various combinations were used as manure. The flesh of hog and deer (19) and turmeric powder (21) were employed for fumigation. The use of fish-water for irrigating certain trees was also in vogue (25, 26). The *Agni-purāṇa* recommends fish-washing for mangoes. It is still practised by mango-growers in certain parts of Bengal.[1] The ground soaked with hail-water was considered to be especially favourable for the growth of plants.[2]

REPRODUCTION OF PLANT-LIFE. I. *Sowing.* Sowing is the simplest method of the propagation of plants. Varāhamihira elaborates the general process of sowing seeds, according to which the seeds were to be taken up in the palm greased with clarified butter and thrown into milk. On the next day, the seeds were taken out of milk with greased fingers and the mass was separated into individual seeds. This process was repeated for ten successive days.[3] Then the seeds were rubbed with cow-dung several times and fumigated with the flesh of hog and deer; mixed with flesh and hog's marrow, they were to be sown in the prepared soil, and sprinkled with a mixture of milk and water (LIV.19-21).

According to another method, the seeds were steeped hundred times in the paste or oil of either alangium or cordia fruit and planted in the earth soaked with hail-water (LIV. 27-28). Special methods were followed for making certain seeds with very hard shells sprout. We get the process of sowing the tamarind, wood-apple and cordia seeds.

(a) *Tamarind* (LIV.21). The tamarind seeds sprout and give out luxuriant stems and foliage when they are soaked in a compound of powdered rice, black gram, sesame, groats and stale flesh and then fumigated with turmeric.

1. *Agni-purāṇa* Ch. 194; G. P. Majumdar, *Vanaspati*, p. 45; also Khana's maxim 'Gourds flourish under the influence of fish-washings'.

2. LIV.28 (*karakonmiśramṛdi*), 30 (*karakājalamṛdyoge*).

3. Cf. Utpala on LIV.19 :—आज्ययुतहस्तयोजितम्, आज्ययुतेन घृतेनाभ्यक्तेन हस्तेन करेण योजितं क्षीरमध्ये क्षिप्तम्। पुनर्गृहीत्वा घृताभ्यक्तेन करेणैकीभूतं पृथक्कार्यम्। एवं प्रत्यहं कर्म कार्यम्। यावद् दश दिनानि।

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(b) *Wood-apple* (LIV.22-26). The following method is recommended for making the wood-apple seeds sprout: Boil the roots of *āsphota*, *āmalaka*, *dhava*, *vāsikā*, *vetasa*, *sūryavallī*, *śyāmā* and *atimuktaka* in milk, cool it, and soak the wood-apple seeds in this compound for a period of time needed for hundred rhythmic claps with the palms. Then take out the seed, dry it in the sun. This process should be continued for one month. Next, dig a circular pit 1′ 6″ in diameter and twice as deep (3 ft.); fill it up with a mixture of milk and water, dry and burn it with fire, and smear it with honey, *ghee* and ashes mixed together. Then fill it with mud to the height of 3″ and then with the powder of black gram, sesame and barley and then over it put mud to the same height, and then once again fill it with the aforesaid powder, add to it an infusion of fish-water and then beat all this until it becomes a thick mass. Sow the seed at a depth of 3″ and irrigate it with fish-water and flesh-water. It is stated that if this method is followed, soon a bough with charming foliage covers the canopy in an astonishing manner.

(c) *Cordia* (LIV.29-30). Having been separated from their shell and steeped in water mixed with the paste of alangium fruits and dried up in the shade seven times, the cordia seeds were repeatedly rubbed with buffalo's dung wherein they were kept for some time and thereafter sown in the mud soaked with hail-water.

II. *Cuttings.* The method of propagation by cuttings was also known and appears to have been widely practised. The following trees were propagated by means of cuttings (*kāṇḍaropya*) greased with cowdung : jack tree, *aśoka*, plantain, rose-apple, lemon, pomegranate, grape vine, *pālīvata*, *bījapūra* and jasmine (LIV.4-5).

III. *Grafting.* The question whether the art of grafting was known to ancient Indians has formed a subject of controversy among scholars. G. P. Majumdar[1] and R. Gangopadhyaya[2] hold that the method of propagation by grafting was known to India from time immemorial. P. K. Gode, on the other hand, opines that it was unknown in India before

1. G. P. Majumdar, *Vanaspati*, pp. 39, 40, 63; *Uṭavana-vinoda*, pp. 13ff.
2. R. Gangopadhyaya, *Agriculture and Agriculturists in Ancient India*, p. 69.

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the advent of the Portugese on Indian soil in cir. 1498. According to him, it was used for the first time on Indian mango trees by Jesuits of Goa about A. D. 1550.[1] The evidence of our work which forms the sole basis of all these discussions is, however, very clear on this point. Varāhamihira regards the method of propagation by grafting as superior to that by cuttings. Two methods of grafting are recorded: (1) inserting the cutting of a plant into the root of another cut off from its trunk, or (2) inserting the cutting of a tree into the stem of another, the junction of the two in both the cases being covered with a coating of mud, (*mūl-occhede=thavā skandhe ropaṇīyāḥ paraṁ tataḥ*, LIV.5). It is, thus, evident that grafting was known to Indian cultivators in the time of Varāhamihira. From the absence of references in later literature, Gode doubts Indians' knowledge of grafting prior to its application by Jesuits in the middle of the 16th century A. D. However, the gloss of Utpala, who flourished in the first half of the 9th century, clearly shows that grafting was practised in his time also.[2]

IV. *Transplantation* (*saṅkrāmaṇa-viropaṇa*). The plants meant for transplantation at a distant place were smeared from root upto the stem with a mixture of *ghee*, andropogon, sesame, honey, *viḍaṅga*, cow's milk and cow-dung (LIV.7). The history of the art of transplantation in India goes back to a very hoary antiquity. Aśoka had medicinal herbs, roots and fruits imported and transplanted wherever they were not found.[3] Varāhamihira advises cultivators to plant the trees with undeveloped branches in the dewy season (Jan.-March) ; those with branches, in winter (Nov.-January) ; and those with well-developed stems in the beginning of the rainy season. According to another reading, trees having branches were to be planted at the commencement of the monsoon, while those with well-grown stems in the middle of the rainy season. Proper care was

1. P. K. Gode, History of the Art of grafting plants, *IC*, XIII, pp. 25-34.

2. Cf. Utpala on LIV.4-5: ततोऽनन्तरं परं प्रकृष्टं मूलोच्छेदे अथवा स्कन्धे रोपणीयाः । अन्यवृक्षस्य मूलोच्छेदं कृत्वा तस्य छिन्नमूलस्योपरि विजातीयो वृक्षो रोपणीयः । अथवा स्कन्धादधोदन्यवृक्षं छित्वा तस्य स्कन्धमुत्कीर्य विजातीयो वृक्षो रोपणीयः । तत्र मृत्तिकाश्लेषं दापयेदिति ।

3. R. E. II, *SI*, p. 18.

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taken to maintain the particular direction of the cut off tree in transplanting also (LIV.6). The fact that the transplanted cutting of a tree or a seed sown in the soil does not change its nature, except for those slight differences that may be due to the influence of the soil, is recorded in LXXIV.2.

ORDER OF PLANTATION. While laying out a garden, whether public or attached to a homestead, first were planted auspicious trees like *ariṣṭa*, *aśoka*, *punnāga*, *śirīṣa* and *priyaṅgu* (LIV.3). It was with a view to improve the aesthetic and hygienic surroundings of the homestead that gardens were attached to houses. Thus, *plakṣa*, *vaṭa*, *udumbara* and *aśvattha* to the south, west, north and east respectively of a house were believed to have untoward effects, whereas the presence of the same trees in the north, east, south and west in order was approved (LII.83). The presence of thorny, milky and fruit trees near a house was supposed to bring various calamities to its master. Such trees were, at the first instance, to be cut off or otherwise, other auspicious plants, to wit, *punnāga*, *aśoka*, *ariṣta*, *bakula*, *panasa*, *śamī* and *śāla* were planted between them (LII.84-5).[1] The *Śukranīti* lays down that plants yielding good flowers should be planted near villages and a garden to the left of a dwelling house (IV.4.49-50).

IRRIGATION. The trees thus planted were to be watered twice, in morning and evening, in summer, on alternate days in winter, and whenever the soil be dry during the rains (LIV. 9). The *Śukranīti* (IV.4.50), which contains a similar direction, adds that in spring plants should be irrigated in the fifth part of the day, and never in the rainy season. Earthen pitchers were used in irrigating plants (LVIII.2). From Kālidāsa's reference to *secana-ghaṭa*[2] it appears that there were special jars for this purpose.

DISTANCE BETWEEN TREES. As to the space to be left between two trees, we are told that it is the best if they are planted 30" apart from each other, middling, if 24 ft. apart, the least distance being 18 ft.; for, it is stated, the trees growing closeby and touching one another with their roots interlocked do not yield a good quantity of fruits (LIV.12-13). The *Śukranīti* (IV.4.44-5), however, advises the peasants to plant

1. Cf. *Matsya-purāṇa*, CCLV.22-4.
2. *Śākuntala*, Act I, p. 25.

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the best trees at a distance of 30 ft.; those of middling quality, 22½ ft. ; ordinary ones, 15 ft., and inferior ones, 7½' apart.

TREES REQUIRING MOIST SOIL (ANŪPAJA). It is stated that sixteen plants, viz., *jambū, vetasa, vānīra, kadamba, udumbara, arjuna, bījapūraka*, grape vine, lemon, pomegranate, *vañjula, naktamāla, tilaka*, jack tree, *timira* and *āmrātaka* require rather moist soil for their proper growth (LIV.10-11).

PLANT-DISEASES. The paleness of leaves, arrested growth of aprouts, saplessness of branches, and oozing out of sap, these are the diseases of plants due to the agency of cold, wind and heat.[1] According to Kāśyapa, cited by Utpala, absence of branches, stems, foliage, fruits and shade, sereness, and the waning lustre of leaves are the ailments of trees which are caused by cold, heat, rain, wind, and by trees growing too close to one another resulting in their roots being intertwined, and by elephants rubbing their temples against the tree.[2] For healing the plant, its defective part was first trimmed off with a knife, it was smeared with a compound of *ghee* and mud and sprinkled with milk and water (LIV.15). In the event of a tree losing its power of bearing fruits, it was sprinkled with milk cooled down after being boiled with horse-gram, black gram, green gram, sesame and barley (LIV.16).

According to another method followed for an exuberent yield of flowers and fruits in a tree, it was sprinkled with a mixture of two *āḍhakas* of the powdered dung of sheep and goats, one *āḍhaka* of sesame, a *prastha* of groats, a *droṇa* of water, and one *tulā* of beef kept together for seven nights (LIV.17-18). This manuring device is also mentioned in the *Śukranīti* (IV.4.53), but without specifying the quantity of ingredients. It also emphasises the role of flesh and fish-washing in the nurture of plants (IV.4.45, 52)[3].

1. शीतवातातपैः रोगो जायते पाण्डुपत्रता ।
अवृद्धिश्च प्रवालानां शाखाशोषो रसस्रुतिः ॥ LIV.14.

2. शाखाविटपपत्रैश्च छायया विहिताश्च ये ।
येऽपि पर्णफलैर्हीना रूक्षाः पत्रैश्च पाण्डुरैः ॥
शीतोष्णवर्षवाताद्यैर्मूलैर्व्यामिश्रितैरपि ।
शाखिनां तु भवेद्रोगो द्विपानां लेखनेन च ॥ Cited on LIV.15.

3. Varāhamihira asks the cultivator to be duly purified and to wor-

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C. *Flora*

The growth of population and its settlement over a large part of the country has deprived India of much of her vegetation. But a student of Varāhamihira's works is bound to be deeply impressed with her enormous floral wealth in former times. We have references to forests both of natural (*vana*,[1] *kānana*[2]) and cultivated (e.g. *śālīkṣuvanāni*, XV.6) sorts.

CLASSIFICATION. Varāhamihira seems to follow the broadest classification of plant life into (1) trees (*taru*, *vṛkṣa*, *druma*, *pādapa*), (2) succulent shrubs (*gulma*), and (3) creepers (*latā*, *vallī*) in general.[3] Utpala rightly explains *gulma* as a tree without trunk (*gulma akāṇḍa-viṭapa ity=arthaḥ*, XL.7) or a collection of tendrils with only one single root (*gulma eka-mūlajo latā-samūhaḥ*, XI.2)[4]. In *Caraka* (Sūtrasthāna, I. 36), *Suśruta* (Sūtrasthāna, I.2.3) and Manu (I.46), *vanaspati* is defined as a tree that bears fruits without flowers,[5] but in our work it is deprived of this technical sense and is synonymous with *vṛkṣa* denoting trees in general (LIV.18).[6] The words *latā* and *vallī* are often used for creepers in general, but sometimes a distinction seems to be intended between the two.[7] The distinction is not quite clear; *vallīs* are probably creeping plants while *latās* are twining plants. They are used in this sense in the *Amarakoṣa* (*vallī tu vratatir=latā*; *mūlāc=cāgraṁ gatā latā*, II.4.9, 11). The word *pratāna*, which occurs only once (XLVII. 5), denotes creepers with stems spreading on the ground (pro-

ship the tree with a bath and anointment before planting it (LIV.8). For auspicious time of planting, cf. LIV.31; XCVII.6.

1. XV.3; XIX.1, 7; XXIV.15; XXXII.10; XLV.66, 93; XLVII.7, 5, etc.

2. XLV.75.

3. *Vṛkṣa-gulma-latāś=ca*, XXIX.14; *taru-gulma*, XL.7; *pādapa-gulma-vallyaḥ*, LIII.100; *druma-gulma-vallyaḥ*, LIII.101, 105; *gulma*, XI.2; *taru-gulma*, XCIII.13.

4. Also cf. *gulma ekamūlo vṛkṣaḥ*, XXIX.14; *gulmair=ekamūlajaiḥ*, *śākhāsamūhaiḥ sūkṣmaiḥ*, XLVII.5; *gulmair=ekamūlaiḥ*, *śākhā-samūho gulmaḥ* LIII.90; *gulma ekamūlaḥ śākhā-samūhaḥ*, LIII.100; *gulma eka-mūlajaḥ śākhā-samūhaḥ*, LXXXIV.1.

5. Cf. *Amarakoṣa*, II.4.6.

6. Elsewhere it is used for plant life in general, cf. XXIX.1.

7. XLVII.5; LIV.18; LXXXIV.1.

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cumbent or document).[1] *Oṣadhi* connotes the plants that wither away after fructification, and Cakrapāṇi, the commentator of *Caraka*, divides the *oṣadhis* into two classes, (1) annuals or perennials bearing fruits, and (2) plants that wither away after maturing and without fructification.[2] But our author uses this word[3] in the sense of herbaceous plants possessing medicinal properties. He refers to the *oṣadhis* growing on land (*sthala-sambhav = auṣadhīnām*, XL.2) and to persons clever in their use (V.41). There is a reference to *kṣupa* (XCIII.13) which, according to *Amarakoṣa* (II.4.8), denotes a plant with minute branches and roots. The grass (*tṛṇa*) constituted a separate class by itself.[4]

Varāhamihira refers to trees bearing feminine names (*strīsaṁjñās = taravaḥ*, XLII.14), indicating the existence of a system of classifying trees on the basis of the gender of their names. He also alludes to another classification of trees into thorny (*kaṇṭakin*),[5] fruit-bearing (*phalin*, *phaladruma*, *phalataru*),[6] flower-bearing (*puṣpadruma*)[7] and those with milky sap (*kṣīrin*, LII.84; *sakṣīra*, LXXXV.17; XCIV.16; *kṣīrataru*, LII.118). Utpala says that *khadira* etc. are thorny trees while *bījapūra* etc. are fruit-bearing. The popularity of this classification is apparent from the *Śukranītisāra* (IV.4.48-51, 58-61) which enumerates the fruit-bearing and thorny trees, the latter to be planted in forests. The list of thorny trees there begins with *khadira* while *bījapūra* under its other name *mātuluṅga* is included among the fruit-bearing trees.

From the mention of red, yellow, white and black flowers[8], it appears that the flowers were classified on the basis of their colour. Blossoms with particular colours were considered sacred to particular gods.[9]

1. *Manu*, I.48.
2. G. P. Majumdar, *Upavana-vinoda*, pp. 11-12.
3. V.41; X.13; XVI.7; XIX.12; XXXII.10; XL.2; XLVII.37; XCIX.5.
4. *Tṛṇa-taru-gulma*, LIII.90; *śara-darbha-gulma-vallī*, XCIV.5.
5. XLVII.4; LII.84; LXXVIII.4. Cf. also LIII.53—*kaṇṭaky = akaṇṭakānām*.
6. LII.84-5; LXXVIII.18; LXXXV.17.
7. LXXXV.17.
8. VIII.3, 46; XV.1, 14; CIII.47.
9. For instance, red flowers were regarded as especially sacred to the

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An alphabetical list of the flora mentioned by our author is given below.[1]

1. *Abhayā* (XLVII.39), also called *harītakī* (LXXV.11; LXXVI.1) and *pathyā* (LXXV.3), *Terminalia chebula*, is a herb possessing medicinal properties.

2. *Abja* (XLII.33, LXIX.2), the lotus so called because of its growing in water. For the ordinary lotus, our author employs several other names, viz., *ambuja* (XII.10; XXX.20; LVII.39, 44; LXX.13), *utpala* (LXXV.2; LXXVI.7), *paṅkaja* (XXVIII.14; LVII.41), *kamala* (V. 59; XXIV.14; XLII.5; LXIX.1; LXXX.8), *padma* (XXIX.10; LIII.100; LXVII.45, 92; LXIX.11), *śatapatra* (LIII.101; LXVII.23). There were several varieties of lotus (*vicitrāmbuja*, XII.11), white, red and blue ones being referred to : *sitotpala* refers to the white variety (XII.4, 9); *raktotpala*, *Nymphaea rubra* (XXIX.9) and *kahlāra*, *Ottelia alismoides* (LV.4) to the red; and *indīvara* (XII. 9; XLVII.9), *nīlanīraja* (LXIX.7) and *nīlotpala* (XXI.23; XXIX.9; XXXII.21; XLII.33; XLIX.7; LXVII. 66) to the blue sort. We have several references to *kumuda*, water lily (IV.30. 32; VIII.33; IX.45; XII.10; XXIX. 10), and *kuvalaya* (XXX.20) denotes its blue variety. According to Utpala, *padma* mentioned in LIII.100 refers to *sthalapadma*, *Hibiscus mutabilis*, a variety growing on land. Varāhamihira speaks of *kamalavana* (XLII.5), evidently referring to lotuses growing in continuous stretches of water over a long distance and thus presenting the appearance of a forest, a scene quite common in India even today. The opening and closure of the lotus buds at the appearance of the sun and the moon are referred to (*Dhvajam asura-sura-vadhū-mukha-kamalavana-tuṣāra-tikṣṇāṁśum*, XLII.5). There are references to the stalk (*mṛṇāla* noted for whitness, IV.32; XI.49), polem (*kiñjalka*, XXX.20), buds (*dala*, LXIX.7) and the inside (*padma-garbha* noted for its

Sun, Mars and Agni (CIII.47; *YY*, VI.4, 6, 7; *BY*, XVIII.3, 5, 9, 10); white to Vāyu and the Moon (CIII.47; *YY*, VI.14, 15; *BY*, XVIII.6-8); yellow to Jupiter (CIII.47; *YY*, VI.18; *BY*, XVIII.14-15); black to Saturn, Rāhu and Yama (CIII.47; *YY*, VI.11, 13, 8; *BY*, XVIII.18-20); blackish red, to Nirṛti (*YY*, VI.10); and variegated ones, to Venus, Kubera and Indra (*YY*, VI.7, 16,2; *BY*, XVIII. 16-17).

1. The details about the plant life noticed elsewhere in other contexts are not repeated here. In the case of plants bearing more than one name, all the necessary information is given under the name which comes first alphabetically.

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lustre, LXIX.11; *kamalodara*, LVII.48) of the lotus. Water lilies (XII.10) and lotuses (XII.4, 9; XLVII.9) are described as growing in ponds in autumn.

3. *Agnimanthā* (XLIII.39), *Aeschynomene sesban.*

4. *Ajā* (XLVII.41), a medicinal herb mixed with *puṣya-snāna* water.

5. *Ajakarṇa* (XLII.15), approved for making Indra's flagstaff.

6. *Ajamoda* (LXXV.11), *Apium graveslens*, a medicinal herb used in a digestive powder. Utpala gives *dīpyaka* as its another name.

7. *Akṣa* (XLVII.4), also called *nibhītaka* (LII.118; LIII. 24-5, 102), *Terminalia belerica.*

8. *Āmalaka* (LIII.121; LVI.6; LXXV.6; LXXVI.3), *Phyllanthus emblica.*

9. *Ambataru* (LXXVIII.17-18), a timber tree recommended for furniture.

10. *Āmra* (XXIX.11; LIII.119; LVIII.6). also called *cūta* (LXXXV.80), *Mangifera indica*, recommended for fashioning images (LVIII.6).

11. *Āmrātaka* (LIII.50; LIV.11), *Spondias mangifera.*

12. *Amṛtā* (XLIII.9), also called *guḍūcī* (LIII.115. Cf. *Amara*, II.4.82), *Tinospora cordifolia.*

13. *Aṅguṣṭhikā.* Its flower (*aṅguṣṭhika-puṣpikā*, LIII.109 and comm.) is bluish-red (*nīla-lohita*).

14. *Añjana* (LIII.50), a timber tree employed in making furniture (LXXVIII.2).

15. *Aṅkola* (LIII.50; LIV.27, 29), *Alangium Lamarkii.*

16. *Apāmārga* (LIII.115; LXXXIV.7), *Achyranthes aspera.*

17. *Aparājitā* (XLVII.39), a medicinal herb mixed with *Puṣyasnāna* water Utpala gives *śamī* as its other name. According to the *Amarakoṣa* (II.4.104), it was also called *Viṣṇu-krāntā* which Utpala regards as one of the herbs bearing auspicious names (*praśastanāmnyaś=c=auṣadhyaḥ*, XLVIII.42).

18. *Araṇi*, a timber tree forbidden for building purposes (LII.118).

19. *Ariṣṭa* (LII.85; LIII.105; LIV.3), *Melia azadirachta*, a timber tree recommended for fashioning images (LVIII.5).

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20. *Ariṣṭikā* (XLVII. 40), a medicinal herb mixed with *Puṣyasnāna* water.

21. *Arjuna* (XXIX.11; XLII.15; XLIII.4; LIII.12, 101, 105, LIV.10; LVIII.6; LXXXIV.6; XCIV.16), also called *kakubha* (XLIII.4; LIII.76, 119), *Terminalia arjuna.*

22. *Arka* (XXIX.10; XLIX.25; LXXXIV.3), *Calotropis gigantea.*

23. *Asana* (XXIX.5; LXXVIII.2, 11, 15, 17), *Terminalia tomentosa* or *Bridelia martana.*

24. *Aśmantaka* (LIII.43), *Oxalis sp.*; *Bryophyllum calycinum.*

25. *Aśoka* (LII.88; LIII.119; LIV.3), *Saraca indica, Jonesia Asoka.* Both of its species, *raktāśoka* (XXIX.2; XLII. 42; LXXIX.6), the red *aśoka*, and *nīlāśoka* (XXIX.2), the blue *aśoka*, are noticed. The red *aśoka* flower is noted for its deep red hue and whenever no species is specified the red variety is intended (VI.13; XXXVII.2; XLII.33).

26. *Āsphota* (LIV.22), also called *sārivā* (LIII.87), *Hemidesmus indicus.*

27. *Aśvagandhā* (LXXV.9), *Withania Somnifera Dunal.*

28. *Aśvakarṇa* (XXIX.7; LIII.105; LXXXIV.7), *Shorea robusta.*

29. *Aśvattha* (XXIX.3; XLIII.12; LII.83; LXIX.3), *Ficus religiosa*, was regarded as sacred. Also called *pippala* (LIII.96) which is the original of Hindi *pīpal.*

30. *Atasī* (X.21; LVII.32; LXXX.7), *Linum usitatissimum*, its flower being noted for dark blue colour.

31. *Atibalā* (LIII.50), *Sida rhombifolia* or *Abutilon indicum.*

32. *Atimuktaka* (LXXVI.7), *Aganosma caryophyllum.* The name is, however, more frequently used as a synonym of *syandana* or *spandana* (*Bignonia indica*), *Ougeinia Dalbergiodes*, a timber tree (XXIX.5; LIV.4, 22, cf. *Amara* II.4, 26) used in making images and furniture (LVIII.2, 17, 18).

33. *Badarī* (XXIX.5; LIII, 16, 17, 72, 74, 75), *Zizyphus jujube.* Its twiges were chewed as tooth-sticks (LXXXIV.5) and its fruit was called *badara* (LIII.114; LXII.2).

34. *Bakula* (LII.85; LIII.119), *Mimusops elengi.* Its flowers were regarded as particularly sacred to the Sun and Mars (CIII.47). Also called *kesara* (LVIII.6).

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35. *Bāṇa* (XII.6) flowers are noted for their black shade (X.21, where Saturn is compared with it).

36. *Bandhujīva* (XXIX.8), *Pentapetes phoenicea* (*Ixora coccinea*) yields red flowers (XI.11), and a lady with her lips as red as *bandhujīva* flowers is said to be beautiful (LXIX.6). The same as *bandhūka* (XXX.15).

37. *Bhadrā* (XLVII.40). Utpala gives *balā* as another name.

38. *Bhadradāru* (LXXXIV.7), *suradāru* (LVIII.5; LXXVIII.2), or *devadāru* (LXXVIII.15), *Cedrus libani*, variety *deodara*. It grows on the Himalayas at an elevation roughly between 8500 and 5000 feet (F. C. Ford Robertson, *Our Forests*, pp. 10, 37). The exudation of *devadāru* was called *kunduruka* (LVI. 2; comm. *kunduruko devadāruvṛkṣa-niryāsaḥ*).

39. *Bhallātaka* (XXIX.11; XLIII.5; LIII.50; LVI.3), *Semecarpus anacardium*.

40. *Bhāṇḍīra* (LXXXIV.6), a tree twigs whereof are recommended for use as tooth-sticks.

41. *Bhārṅgī* (LIII.48), a herb.

42. *Bījapūra* (LIV.4, 10), *Citrus medica*.

43. *Bilva* (LIII.18, 50, 76, 105; LXXXV.80), *Aegle marmelos*, is a sacred tree whose mark on an article is considered to be auspicious (XXXIII.10; XLIX.2; LXIX.10; LXX.13; LXXVIII.21). Its figure along with that of the *pramathas* and *svastika* is recommended to be made on temple-doors (LV.15). Its twigs were used as sacrificial fuel (XLV. 24) and chewed as tooth-sticks (LXXXIV.5). Its timber was fashioned into images (LVIII.5), and its fruit mixed with *Puṣyasnāna* water (XLVII.42) and used in preparing the *vajralepa* (LVI. 3, 5). Also known as *śrīvṛkṣa* (XXXIII.10; XLIX.2; XLV. 24; LV.15; LXIX.10; LXX.13; LXXVIII.21) and fruit as *śrīphala* (LXXXIV.3).

44. *Bimba* (LXIX.6). Varāhamihira, like other Sanskrit poets, compares female lower lip with its fruit.

45. *Brāhmī* (XLVII.41), *Herpestis Monnieria*.

46. *Bṛhatī* (XLXXXIV.5), *Solanum indicum*. According to Utpala, it is the same as *kaṇṭakārikā* (LIII.57) or *nidigdhikā* (cf. *Amara*, II.4. 93). Botanically, however, *kaṇṭakārikā* bears a different name, *Solanum jacquinii*. It is said that if

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kaṇṭakārikā is seen without thorns but with white flowers, a water-vein underneath it may be expected.

47. *Campaka* (XXIX.8; LXXVI.6, 7), *Michelia champaca.*

48. *Candana* (XLIII.9), *Santalum album.* The fragrant sandal wood is recommended for making images (LVIII.5) and furniture (LXXVIII.2, 12, 14, 18) and its paste was frequently used in toilet and cosmetic preparations in ancient India (LXXVI.9, 30). It grew abundantly in the Malaya region and was consequently called *malaya* (LXXVI.7, 8, 14, 24. Cf. *Raghuvaṁśa*, IV.48, 51, etc.).

49. *Chattra* (LIII.101), Fennel; Mushroom.

50. *Cirabilva* (XXIX.5), the same as *karañja* (LIII.33) and *naktamāla* (LIII.101, cf. *Amara*, II.4.47). But botanically all these three bear different names : *Holoptelia integrifolia, Galedupa arborea, Caesalpinia bonducella.* The *naktamāla* needs moist soil for proper growth (LIV.11). *Karañja* twigs are recommended as tooth-sticks (LXXXIV.4).

51. *Coca* (XL.4). According to Utpala, it is the same as *pālevata* or *nālikera*, coconut (*cocaṁ pālevataṁ nālikeraṁ vā*; also on LIV.4 where he identifies *pālevata* with *coca*). But Amara regards it as a synonym of *vac*, now called *taja* (II.4.154).

52. *Dāḍima* (LIV.4, 10; LXXXIV.7), *Punica granatum*, pomegranate. The red hue of the seeds of the ripe pomegranate fruit is noticed (*pariṇata-dāḍima-gulikā-guñjā-tāmram*, LXXX.8). Also called *piṇḍāra* (LIII.50).

53. *Dantī* (XLIII.9; LIII.48), *Baliospennum axillare.*

54. *Darbha* (XXIV.8; XCIV.5), *Poa cynosuroides*, a holy grass much used in religious ceremonies. *Kuśa* flowers are mentioned in XXIX.13.

55. *Dhanvana* (LVI.1), *Grewia tiliefolia.*

56. *Dhānya* (LXXVI.13, 15) or *dhānyakāphala* (LXXX.6), *Coriandrum Sativum*, much used in cosmetic preparations in ancient India.

57. *Dhava* (XLII.15; LII.118; LIII.105), *Anogeissus latifolia*; *Conocarpus latifolia.*

58. *Dṛākṣā* (LIV.4) or *mṛdvīkā* (LIV.10), grape vine.

59. *Dūrvā* (XL.4; LIII.37, 47, 77, 78), *Cynodon dactylon.* Its stalk is noted for its dark green colour (*dūrvākāṇḍa-śyāme*, V.58), its flower being mentioned in XXIX.13.

60. *Eḍikākṣī*, a variant reading in XLVII.41.

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61. *Garuḍavegā* (LIII.87), a herbaceous plant (*vīrudh*).

62. *Girikarṇikā*, *Clitorea ternata*, white variety, mentioned under the name *śvetā* (XLIII.10).

63. *Gokṣuraka* (LXXV.10), *Tribulus lanuginosus*, popularly known as *gokhru*. It possesses medical properties and was used in medicines.

64. *Guggulu* (LVI.3, 5; LXXVI.9, 11), *Balsamodendron mukul*, popularly called *gugal*.

65. *Guṇḍra* (LIII.100), *Sacchaıum sara*, is classed as a *tṛṇa*.

66. *Guñjā* (LXXX.8, 11, 12) or *kṛṣṇala* (LXXX.11), *Abrus precatorius* seeds, popularly known as *ghoṅghcī*, are noted for their red colour (LXXX.8) and formed a unit of weight. At present necklaces of *guñjā* seeds are worn by tribals in North India.

67. *Haridrakataru* (LIII.45; LXXVIII.2, 16), *Curcuma longa*.

68. *Haridrā* (V.58), turmeric, noted for its deep colour. Also called *rajanī* (XLIII.9) and *kāñcanī* (XLVII.41, cf. *Amara*, II.9.41).

69. *Hastikarṇa* (XXIX.7) or *ibha* (LIII.101), *Ricinus communis*.

70. *Iṅguda* (XXIX.6), *Ximenia aegyptiaca*, is a wild tree commonly known as *ingua*.

71. *Indrataru* (LIII.69).

72. *Jambū* (XXIX.4; LIII.8, 9, 86, 87, 101, 119, LIV. 4, 10; LXXXIV.7), *Eugenia jambolana*, is the rose-apple tree now called *jāmun*.

73. *Japā* (XXVIII.14), *Hibiscus rosasinenses*, a flower-plant called the China rose. Its blossom is noted for dark red colour.

74. *Jāti* (LXXXIV.4), *Barleria cristata*.

75. *Jīvā* (XLVII.39), *Dendrobium sp.*, is a herb mixed with bath water and popularly called *ḍoḍi*. *Jīvanti*, *jīvanī*, *jīvanīyā*, *madhu* and *sravā* are its other names given in the *Amarakoṣa* (II.4.142).

76. *Jīvaka* (LVIII.6), commonly called *vijayasāra*, a timber tree recommended for making statues. According to Amara, it is the same as *asana* noticed above (II.4.44).

77. *Jyotiṣmatī* (XLVII.39), *Cardiospermum halicacabum*, is a herbaceous plant (LIII.87).

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78. *Kadalī* (XXIX.7; XL.4; XLIX.26; LIV.4), *Musa sapientum*, is the well-known plantain tree. Its trunk is noted for its bluish-yellow shade (LXXIX.8; LXXXII.1).

79. *Kadamba* (LIV.10; LXXXIV.5), *Anthocephalus kadamba*, yields flowers at the approach of rains and there is a reference to northern wind fragrant on account of its flowers (XXVII.8).

80. *Kākodumbarikā* (LIII.19), *Ficus sp.*, is commonly called *kaḍumbarī*. Utpala gives *phalgu* as another name (cf. *Amara*, II. 4.61).

81. *Kampillaka* (LIII.21), a tree requiring moist soil for normal growth.

82. *Kapikacchu* (LXXV.4, 9) is a twining creeper commonly known as *kavānch*. Also called *svaguptā* (XLIII.10, cf. *Amara*, II.4.86-7 for other names).

83. *Kapittha* (XXIX.12; LIII.41; LIV.22; LVI.1, 5, 7), *Feronia elephantum*, is the wood-apple tree popularly called *kaith*.

84. *Karavīra* (XLIX.7; LXXXIV.6), *Nerium odoratum*, is popularly known as *kanail*. It yields red flowers of excellent hue but without any fragrance.

85. *Karīra* (LIII.67, 74, 76), *Capparis aphylla*, called *karel* in Hindi. Its sprout and milky sap are mentioned (LIII. 106).

86. *Karṇikāra* (XXIX.9) *Hibiscus mutabilis*, commonly called *kathacampā*, bears red flowers of charming hue but with no smell whatsoever. If in a moist soil it bears white flowers, it is indicative of sub-soil water (LIII.59). Amara gives *parivyādha* as another name for it (II.4.60).

87. *Kāśa* (LIII.100,103), *Saccharum cylindricum*, a kind of grass known as *kās*.

88. *Kāśmarī* (XLIII.12; LXXVIII.2; LXXXIV.3), *Gmelina arborea*, is a timber tree popularly known as *khambharī*. Also called *śrīparṇī* (LIII.105. Cf. *Amara*, II.4.35-6).

89. *Kataka* nuts (*kataka-phala*) along with other articles were used for purifying water (LIII.121).

90. *Kaṭambharā* (XLIII.10), is a herb, its another name, according to Utpala, being *mahāśvetā*. But Amara (II.4, 110, 153) distinguishes them from one another.

91. *Khadira* (XXVI.9; XXIX.11; XLIII.12; LVIII.5,

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6; LXXXIV.5; LXXXV.80), *Acecia catechu.*

92. *Kharjūra* (LIII.101) or *kharjūrī* (LIII.58), *Phoenix sylvestris*, is the date tree (*khajūr*). It is one of the palmaceae classed as tree-grasses (*tṛṇa-druma*) by Amara (II.4.270). Varāhamihira refers to a *kharjūra* tree with two tops (*dvi-śiraska*, LIII. 58), which is an exception.

93. *Kīcaka* (LXXXV.80), a species of bamboo. According to Amara, those bamboos which produce noise when moved by the wind are called *kīcaka* (*veṇavaḥ kīcakās=te syur=ye svananty=anil-oddhatāḥ*, II.4.161).[1]

94. *Kiṁśuka* (VI.13; XXIV.14) or *palāśa* (XXIX.6; XXX.7; XLIII.12; LIII.17, 59, 83, 96, 112; XCII.4), *Butea frondosa*, yields red flowers of excellent hue but devoid of any smell. This tree profusely grows in Madhya Pradesh and in parts of Uttar Pradesh. A *palāśa* tree with white flowers, which form an exception, indicates the presence of a water-vein nearby (LIII.59).

95. *Kovidāra* (XXIX.13; LIII.27), *Bauhinia species*, popularly called *kachnār*, blooms in autumn.

96. *Kṣemā* (XLVII.41), *Augelica glauca.* Utpala gives *kāṣṭhaguggula* as its synonym and says that it was popularly known as *coraka* which is the original of its modern name *cora.* It was also known as *cola* and used in cosmetic preparations (LXXVI.14).

97. *Kṣemataru* (LXXXIV.3).

98. *Kṣīrikā* (XXIX.2), *Ficus sp.*, is the same as that called *khiranī* in Hindi. Utpala identifies it with *dugdhikā*, *Euphorbia* species, popularly called *dūdhī.* Amara (II.4.45) gives *rājādana* and *phalādhyakṣa* as other names of *kṣīrikā* and distinguishes it from *dugdhikā* (II.4.100).

99. *Kunda* (XXIX.5), a jasminum species. The *kunda* flowers are specially noted for their white hue (*avadāta*, IV.30; VIII.53). Beautiful are indeed the teeth resembling the *kunda* buds (LXIX.6).

100. *Kuṅkuma* (X.11; XLI.10; XLIX.21), *Crocus sativa*, is saffron. It was used as a dyeing stuff and a thread coloured with it (*pratisara*, XLIII.5; XLVII.33) was and is still used in religious ceremonies.

1. Cf. *Kumāra-sambhava*, I.8.

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101. *Kurabaka* (XXIX.8), *Barleria cristata*, red variety (cf. *Amara*, II.4.74).

102. *Kuraṇṭaka* (XLII.33), *Barleria prionites*, is according to Amara, a yellow variety of the above (*tatra pīte kuraṇṭakaḥ*).

103. *Kuṣṭha* (XLIII.9; LXXVI.5, 6, 7, 32) or *utpala* (LXXVI.10), *Costus speciosus*, is the fragrant herb called *kuth*. It was much used in preparing perfumes and formed an important article of Indian export to the Roman empire (H. G. Rawilinson, *Intercourse between India and the Western World*, p. 124).

104. *Kusumbha* (XXIX.9), *Carthamus tinctorious*, bears red flowers which were used for dyeing. A cloth coloured with *kusumbha* flowers was called *kausumbha* (X.11). Utpala calls it *mahārajata* (on XXIX.9), which appears to be a mistake for *mahārajana* (*Amara*, II.9.106), indicating its abundant use for colouring.

105. *Kuṭaja* (XXIX.12), *Holarrhena antidysenterica*, flowers during rains. It is popularly known as *kuraiyā*.

106. *Lakṣmaṇā* (LIII.48), a herb.

107. *Lakuca* (LIV.4, 10), *Artocarpus lakucha*, *Erythrina indica*.

108. *Lavalī*, *Phyllanthus districhas*. *Lavalī-phalas*, which Utpala explains as *Lavaṅga* flowers (for there can be no fruits, *lavalīphalaṁ lavaṅga-puṣpaṁ tasya phal-āsambhavāt*), served as a spice in betel (LXXVI.37). A spurious verse (XXVII.5) locates *lavalī* and *lavaṅga* along the south-west coast and speaks of the south-western wind blowing unceasingly tossing up and down in the sea heaps of small cardamoms, *lavalī* and *lavaṅga*.

109. *Madana*, *Randia dumetorum*, is popularly called *dhatūrā* (cf. *Amara*, II.4.77-8). Its fruit (*madanaphala*, LVI.5) formed an ingredient of *vajralepa*, a kind of cement.

110. *Madayantikā* (LIII.102), *Jasminum zambac*.

111. *Madhūka* (XXIX.4; LIII.35, 119, LVI.5; LVIII.5; LXXXIV.3), *Bassia latifolia*, is the *mahuā* with the flowers of which wine is scented.

112. *Mālatī* (CIII.14), a jasminum species.

112a. *Mallikā* (LX.14; LXI.2), a jasminum species.

113. *Mañjiṣṭhā* (LVI.5; LXXVI.6), *Rubia cordifolia*, is the Indian madder popularly called *majīṭh*. The permanent dye produced from it is alluded to in several places. The colour

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produced by it is called *māñjiṣṭharāga* (XII.1 9; XXX.12) and an article coloured with it *māñjiṣṭha* (X.11; XXX.14). Also called *samaṅgā* (XLIII.9; XLVII. 39. cf. *Amara* II.4.90-91).

114. *Māṣaparṇī* (LIII.88), *Glycine debilis.*

115. *Maurvī* (LIII.87). a herb.

116. *Mokṣaka* (LIII.113), a variety of *lodhra*. Utpala informs us that it was commonly called *maṇīvaka*.

117. *Nāga, Mesua ferrea*, is the *nāgakesara* tree. We have numerous references to its flowers (XXIX.12; XLIII.10; LXXVI.13, 32; LXXXVI.24) and fruits (LVI.5). On LIII.101, where Varāhamihira refers to the *nāga* tree, Utpala says that *nāgakesara* is obtained from it (*nāgakesaraṁ yasmād=utpadyate*) and explains *nāga-puṣpa* as *nāgakesara*. *Nāga* is generally believed to be the same as *punnāga*, but Varāhamihira makes a distinction between the two as is evident from his mention of both these side by side (LXXXVI.24).

118. *Nālikera* (LIII.40) is the coconut tree.

119. *Nandikāvarta* (XXIX.8), *Tabernaemontana coronaria*, is probably the same as the *nandivṛkṣa* of the *Amarakoṣa* (II.4.128).

120. *Navamālikā* (LIII.48), a jasminum species.

121. *Nicula* (XXIX.12) is the cane reed tree mentioned as growing on sea-shore (XLVII.12) and ponds (LIII.119; LV.5). The mention of *nicula* and *vetasa* together in one and the same line (LIII.119) points to the distinction between the two. Amara (II.4.29-30, 61) distinguishes them from one another, but the nature of this distinction is not quite clear. Kālidāsa mentions it as growing wildly near Rāmagiri (Ramtek near Nagpur, *Meghadūta*, pūrvamegha, 14) and on the banks of the rivers Tamasā, Gambhirā and Mālinī (*Raghu*, IX.75; *Meghadūta*, pūrvamegha, 41; *Śākuntala*, III.23).

122. *Nimba, Melia azadirachta*, is the famous *nīm* tree. Its wood is forbidden for building purposes (LII.118). Its leaves (LIII. 115) and fruits (LVI.5, 7) were supposed to possess chemical properties. Also called *picumanda* (XXIX.12 refers to its flowers, cf. *Amara*, II. 4.62).

123. *Nīpa* (LIII.101, LXXXIV.6), *Nauclea kadamba.*

124. *Nirguṇḍī* (LIII.14) or *sinduvāra* (XXIX.9; LIII. 101), *Vitex trifolia.*

125. *Nyagrodha* (XXIX.3; LIII.96; LXXXIV.3; LXXXV.80) or *vaṭa* (LII.83), *Ficus bengalensis.*

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126. *Padmaka* (LXXVIII.2, 13), *Prunus Puddum Roxb.*

127. *Panasa* (LII.85; LIV.4, 11), *Artocarpus integrefolia*, is the famous *kaṭahala* tree.

128. *Pārijāta* (LXXVI.27), *Erythrina indica*, is the same as that called *harasiṅgār* in Hindi.

129. *Paruṣaka* (LIII.50). *Grewia asiatica.*

130. *Pāṭala* (XXIX.7), *Stereospermum suaveolens*, is a *vṛkṣa-jāti* according to Utpala. The *pāṭala* flowers are slightly red (*śvetalohita*, V.58 and comm.).

131. *Pāṭhā* (XLVII.39), *Stephania hennandifolia.*

132. *Pattra* (XL.4; LXXVI.5, 7, 12, 23, 29, 32, 33), *Laurus cassia* or *Cinnamonum inens*, the same as *gandhapatra* or *sugandhapatra*, much used in perfumes.

133. *Pilu* (XXIX.11; LIII.63; 65, 75), *Salvadora indica*, is even now known by this very name.

134. *Pippalī* (XVI.29; LIX.8; LXXV.11), *Piper longum*, a spicy plant.

135. *Plakṣa* (LII.83; LIII.119), *Ficus tsiela religiosa*, is a variety of the banyan tree called *pākara.*

136. *Priyaka* (XLII.15; LIV.3; LXXXIV.7). According to Amara, *priyaka* may denote *kadamba*, *jīvaka* or *priyaṅgu* (II.4.42, 44, 56). It is difficult to say which of these trees is intended here.

137. *Priyaṅgu* (XLIII.9), *Aglaia Roxburghiana*, the same as *gandhapriyaṅgu* according to the commentator, was used in perfumes (LXXVI.8).

138. *Pūga*, *Areca catechu.* Betel nuts (*pūgaphala*, LXXXVI.2) were chewed with betel leaves (LXXVI.36, 37).

139. *Punnāga* (LII.85; LIV.3), *Calophyllum inophyllum.* Its flower is mentioned in LXXXVI.24. It is known as *sandeśarā* in Gujarāti.

140. *Pūrṇakośa* (XLIII.10; XLVII.40), a herb used in religious ceremonies.

141. *Rāja-kośātaka* (LIII.121), *Luffa amara.* Its powder was used for clearing water.

142. *Rodhra-vṛkṣa* (LXXXV.80), *Symplocos crataegoides* or *Symplocos racemosa*, is the same as the *lodh* tree.

143. *Rohita* (LIII.72) or *rohītaka* (LIII.68, 79), *Andersonia Rohitaka*, is commonly known as *rohiḍa.* It yields flowers as red as those of pomegranate (*dāḍima-puṣpaka* is another name,

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Amara, II.4.49). A white variety of *rohītaka* is referred to (LIII. 84).

144. *Sahadevī* (XLIII.10; XLVII.40), a herb. According to Utpala, it was also known as *sahagandhā*.

145. *Śāka* (LIII.105; LXXVIII.2, 13, 16), the teak tree.

146. *Śāla* (XXIX.2; LII.85; LVIII.6; LXXVIII.2, 13, 16; LXXXIV.7), *Shorea robusta*, is supposed to be the same as *sarja* and both these share the same botanical name (cf. *Amara*, II.4.44, which regards them identical). But the mention of both of these in one and the same line implies some sort of distinction which is not quite clear.

147. *Śallakī* (LVI.1), *Boswellia serrata*.

148. *Śālmalī* (LVI.1), *Bombax malabaricum*, is the silk-cotton tree called *semal*. The cotton obtained from it is used for stuffening.

149. *Śamī* (XXIX.11; LII.85; LIII.83; LVIII.5; LXXXIV.6), *Mimosa suma* (*Prosopis spicigera*). We have references to knotty (LIII.81) and white *śamī* showing too many thorns (LIII.85). Its wood was believed by Sanskrit poets to possess latent fire. (Cf. *Śākuntala*, IV.3, *agnigarbhāṁ śamīm iva*).

150. *Saptaparṇa* (XXIX.4), *Alstonia scholaris*.

151. *Sarja* (XLIII.4; LIII.105; LVIII.6), *Shorea robusta*. The exudation of *sarja* (*sarja-rasa*) formed an ingredient of *vajralepa* and *vajrakalka* (LVI.3, 6) and of certain perfumes (LXXVI.11).

152. *Śatāvarī* (XLIII.10; XLVII.40), *Asparogus racemosus*.

153. *Saugandhika* (XXIX.10) is, according to Amara (II.4.166), a grass or white *kahlāra* (I.10, 36). According to the *Haima* quoted by Bhānuji (on *Amara* II.4.166), it may denote a grass, *gandhotpala*, *padmarāga* or *kahlāra* besides a dealer in perfumery.

154. *Śiṁśapā* (LIII.105), *Dalbergia sisoo*, is the *sīsam* tree. Its wood is very strong and durable and is recommended for furniture (LXXVIII.2, 12, 15), for which purpose it is still used abundantly.

155. *Sindhuka*, a tree recommended for images (LVIII.6).

156. *Śirīṣa* (XXIX.4; LIII.50; LIV.3; LIX.8; LXXXIV.4), *Mimosa sirissa*. At one place, Utpala says that *śirīṣa* flowers are bluish-yellow and at another place describes the

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same as whitish-yellow (*nīla-pīta*, III.28; *śveta-pīta*, LXXIX.6; LXXXII.1; he makes no remark on LXXIX.11).

157. *Śivā* (XLVII.40), *Phyllanthus emblica*, is mentioned as a herbaceous plant (*vīrudh*, LIII.87).

158. *Śleṣmātaka* (XLVII.4; LIV.27, 29, 30), *Cordia mixta*, is commonly known as *lasoḍā* or *bahuā* (the latter being a derivative of *bahuvāraka*, another name of *śleṣmātaka*, *Amara*, II.4.34).

159. *Somarājī* (XLIII.10) *somavallī* (LIII.108), *Proralia corylifolia*. According to Amara, *somavallī* is another name for *guḍūcī*, while *somavallī* and *somavallikā*, among others, are said to be synonymous with *vākucī* commonly known as *vakuā* (*Amara*, II.4.82-83, 95-6.

160. *Śoṇākataru* (LIII.23), Bignonia.

161. *Śrī* (LXXVI.11) or *śrīvāsaka* (LVI.3) is the resin of a tree.

162. *Śṛṅgāṭaka* (LXXIX.17), *Trapa bispinosa*, is an aquatic creeper producing the fruit now called *siṅghāḍā*. It is noted for its three angles.

163. *Śṛṅgavera* (LXXV.11), *Zingiber officinale*, a bulbous root used in medicines and as a spice. It is popularly called *adarak* (a derivative of *ārdraka*, its another name; cf. *Amara*, II.9.37).

164. *Sūkarapādī* (LIII.48), a herbaceous plant.

165. *Sūkarikā* (LIII.88), *Mimosa pudica*, is mentioned as a *vīrudh* (herbaceous plant).

166. *Sūryavallī* (LIV.22), *Gynandropsis pentaphylla*.

167. *Suvarṇataru* (LIII.70). Utpala regards it as the name of a particular tree. G. P. Majumdar's rendering of it by 'any tree denominated after gold' (*Upavana-vinoda*, p.23) appears to be untenable. It may be identical with the *suvarṇaka* mentioned by Amara (II.4.24).

168. *Suvarṇapuṣpa* (XXIX.10), *Cassia fistula*.

169. *Suvarṇāpuṣpī* (XLIII.9), mentioned as an *oṣadhi* (herb).

170. *Śyāmā* (LXXXIV.6) *Echnocarpus frutescens*, is called both a *latā* (XXIX.13) and a *vīrudh* (herb, LIII.87). Kālidāsa compares its creeper with the body of woman apparently on account of its delicacy and thinness (*Mālavikāgnimitra*, II.6).

171. *Tāla* (LIII.40, 119), *Borossus flabelliformis*, is the palmyra tree.

172. *Tālī* (XXVII.4), Talipot palm. Varāhamihira

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locates it in the south and speaks of the rough and howling southern wind making the monkeys dance through the leaves of palm trees, bowers of creepers and trees. Kālidāsa describes it as lining the sea-coast of Kaliṅga (*Raghuvaṁśa*, XIII.15).

173. *Tamāla* (XXI.23; XXIV.17) *Cinnamomum tamala*, is noted for the dark green hue of its leaves.

174. *Tilaka* (XXIX.6; LIII.50, 73; LIV.11) bears white fragrant flowers (LXXXVI.24; CIII.47) in the spring season which were called *vasanta-tilaka* (CIII.33).

175. *Timira* (LIV.11).

176. *Tinduka* (XXIX.3; LIII.50, 112, 115; LVI.1, 5, 6; LXXVIII.2, 15), *Diospyros glutinosa*, is the ebony tree called *tendū*. Its fruit is also known by the same name.

177. *Tintiḍī* (LIV.21), *Tamarindus indica*, is the tamarind tree called *cincā* or *imalī*.

178. *Trāyamāṇā* (XLIII.10) or *trāyamāṇa* (XLVII.39), is an *oṣadhi*.

179. *Trivṛtā* (LIII.48, 87), *Ipomea turpethum*, is mentioned as a *vīrudh*.

180. *Tvac* (LXXVI.5, 6, 12, 24), cassia bark.

181. *Udumbara* (XLII.15; XLIII.4, 12, 20; LII.83; LIII.11, 18, 96; LIV.10; LIX.8), *Ficus glomerata*, is called *ūmar* or *gūlar* in Hindi. Mention is made of its ripe fruit (LIII. 107).

182. *Uśīra* (LXXVI.12, 13, 29), *Andropogon laniger*.

183. Vacā (XLIII.9; LVI.1), *Acorus calamus*, otherwise called *vijayā* (XLVII.39).

184. *Valla* (LXXIX.7) flower is slightly yellowish (*valla-puṣpasaṅkāśaṁ valla-puṣpanibham īṣat pāṇḍuram*, comm.).

185. *Vaṁśa*, bamboo, is called as a *gulma* (XI.26; XXX. 27). Swords shaped like bamboo leaves were highly valued (XLIX.7). As we have seen above, a species of bamboo named *kīcaka* is specified. Also *veṇu* (XLII.8).

186. *Vānīrā* (LIV.10), *Calamus Roxburghii*.

187. *Vañjula* (LIII.50; LIV.11; XCIV.16), *Calamus rotang* or *Salix tetrasperma*.

188. *Vārāhī* (LIII.87) is classed as a *vīrudh* and is probably the same as that called *vārāhīkanda*.

189. *Varuṇaka* (LIII.50) is probably the same as *varuṇa* (*Crotoeva religiosa*) mentioned in Caraka. According to Amara

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(II.4.25), it has its synonyms in *varaṇa, setu, tiktaśāka* and *kumāraka*.

190. *Vasanta-tilaka* (CIII.33) bears white blossoms with which are compared the grey hair of an elderly person (*vasanta-tilaka-dyutimūrdhajo=pi*. Cf. *Vasantatilako vṛkṣas=tasya puṣpam= atīva śvetavarṇaṁ bhavati*, Utpala). But most probably it is an allusion to the *tilaka* blooming in spring.

191. *Vāsikā* (LIV.22), *Adhatoda vasika*. *Vāsī* (LXXIX. 16) is probably the same as *vāsikā*; its fruits is said to be elongated (*vāsīphala-pradīrghāṇi*, LXXIX.16).

192. *Vetasa* (LIV.22), *Calamus viminalis*, belongs to the *anūpa* region (LIV.11) and therefore its presence in an arid area indicates a sub-soil water-vein nearby (LIII.6, 86, 101). It is recommended for being planted on the banks of water-reservoirs (LIII.119). Its flowers are mentioned in XXIX.6.

193. *Vidārikā*, *Ipomola digitata*. The juice and root of *vidārikā* were used for medical purposes (LXXV.5, 9, 10).

194. *Vikaṅkata* (XLVII.42; LXXXIV.3), *Flacourtia sapida*, or *Gymnosporia montana*, is commonly called *kaṭher*.

195. *Vīraṇa* (LIII.47), *Andropogon muricatum*, is classed as a *gulma* (XXX.24).

196. *Viśveśvarī* (XLVII.39) is, according to Utpala, the same as *padmacāriṇī*, which is mentioned in Amara, II.4.146.

197. *Vyāghrapadā* (LIII.87) is classed as a *vīrudh*.

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II

FAUNA

The *Bṛhatsaṁhitā* furnishes materials for an important chapter in the history of ancient Indian fauna. As many as seven chapters (LX-LXVI) are devoted to fauna besides much valuable information scattered throughout the work.

CLASSIFICATION. Varāhamihira classifies entire animal life into rural (*grāmya*[1]), wild (*āraṇya*[2]), aquatic (*ambucārin*,[3] *jalacara*,[4] *jalacārin*[5], *salilacara*,[6] *jalaja*,[7] *salilaja*[8]), terrestrial (*bhūcārin*[9]), atmospheric (*vyomacārin*), diurnal (*dyucara*, *divasacara*, *divāsañcara*[10]), nocturnal (*niśācara*, *kṣapācara*)[11] and diurnal-nocturnal (*ubhayacārin*, LXXXV.6). The diurnal, nocturnal and diurnal-nocturnal creatures are enumerated in LXXXVII.1-3. Another classification was into male, female and hermaphrodite (LXXXV.6). Our author states that owing to the multiplicity of their genera it is difficult to ascertain the sex of creatures and quotes two verses from Ṛṣī (Vṛddha-Garga according to the commentator) according to which male creatures have fleshy, raised and large shoulders, broad necks, handsome breast, low but deep voice and firm courage; the females are characterised by slender breast, head and neck, short face and legs, little courage and clinging and melodious voice, and the hermaphrodites possess mixed characteristics (LXXXV.7-9). Creatures were also distinguished from each other according as they bore masculine (*punnāmānaḥ*) and

1. LXXXV.10, 24.
2. LXXXV.10, 24. Cf. XLV.65, where urban and wild birds are contrasted.
3. XCV.5.
4. IV.5; XV.2; XXI.23.
5. LV.5.
6. V.33.
7. XVII.24.
8. IX.33.
9. Cf. XCIV.58 *sthalacara*.
10. LXXXV.24; XLV.65; LXXXVII.1.
11. LXXXV.24; XLV.65; LXXXVII.2.

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feminine (*strīsaṁjñāḥ*) names (LXXXV. 36-7)[1]. Birds and wild animals are also distinguished from one another (*khaga-mṛga*,[2] *pakṣi-mṛga*,[3] *patatri-mṛga*,[4] *mṛgāṇḍaja*[5], *vihaṅga-mṛga*[6]). Some other modes of classification were also in vogue, e.g., according of food-habits, as *tṛṇabhuj* (V.30) or eaters of grass, and *kravyād* (XLIX.3; LXIX.22; LXX.12)[7] or carnivorous animals; according to certain distinguishing limbs, as *daṁṣṭrin* (V.93; VI.3; VIII.51; XIX.1; XXXIII.9; LXXXV.44), animals with prominent teeth like the boar, dog and serpent, or *upari-daṁṣṭrin* (XCIV.57). animals with teeth above like the boar, *śṛṅgin*, horned animals like the deer (XVI.8; CIII.61), and *ekaśapha*, animals with uncloven hoofs like horses and asses (V. 78; LXXXV.23); according to size, as *kṣudra-jantus* (XI. 45); according to habits, as *sarīsṛpas*, reptiles (XXVIII.13) (LXIX.22) or *śīghraga*, moving fast like the camel (V.54). The burrow-dwellers (*vileśayas*) are distinguished from the tusked animals (LXXXV.44).[8] Caraka (I.27. 35-55), it is interesting to note, classifies the animal kingdom mostly according to the habits of food and living. Thus, he knows burrow-dwellers (*bhūmiśaya*), aquatic creatures (*vāriśaya*, *vāricārin*, *ambucārin*) and wild beasts (*jāṅgalā mṛgāḥ*) besides the animals and birds that eat their food after tearing (*prasaha*), scattering (*viṣkira*) and picking it up (*pratuda*). A list of the fauna mentioned by Varāhamihira is given below.

WILD ANIMALS. The word *mṛga* is mostly used to denote wild life in general[9] and only occasionally the deer.[10] The lion (*siṁha*[11], *hari*[12]), the king of the wild life (*mṛgendra*), was

1. For enumeration of creatures with feminine names, cf. Parāśara cited by Utpala.
2. III.38; XV.13; XLVII.13.
3. XXI.16; XXIV.12; XLV.91, 94.
4. XXIV.25.
5. XXX.5; LXXXV.43.
6. XXX.7; XLV.66; XCVI.7.
7. Cf. LXXXV.67, where creatures subsisting on grass, water, flesh and grains are mentioned.
8. Cf. LXXXV.28, where burrow-dwellers are distinguished from the tiger, bear, monkey, leopard and buffalo.
9. III.25, 38; VI.3; VIII.4; XV.3, 13; XXI.16; XXIV.12, 25; XXX.5, 7; XXXIII.9, etc.
10. XLVII.14; XC.1.
11. XL.4; XLVII.13, 76; LV.28; LXVII.18, 95.
12. XI.47.

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found in the Vindhya forest (XII.6). It is noted for its tail turning from left to right (XI.47) and deep sound (LXVII.95). The elephant is referred to as *hastin*,[1] *karin*,[2] *gaja*[3], *dvipa*[4], *dvirada*[5] and *dantin*[6], and its female as *kareṇu*[7]. Varāhamihira mentions four kinds of elephants[8]— (1) an elephant with tusks coloured like honey, a well-proportioned body, uniform limbs, a backbone shaped like a bow and hips like those of a boar, and which is neither too stout nor lean and is fit for work is called Bhadra;[9] it is 7, 9 and 10 cubits in height, length and girth respectively; the colour of Bhadra and its ichor is green; (2) Manda has a loose breast and folds on the waist, long belly, thick skin and neck, long abdomen and the root of the tail, and the look of a lion; it is 6, 8 and 9 cubits in height, length and girth: Manda and its ichor are yellow; (3) Mṛga is characterised by short lips, tail and sex-organ, slender feet, neck, teeth and ears, and large eyes; its height, length and periphery measure 5,6 and 8 cubits; Mṛga and its ichor are black; (4) an elephant with mixed characteristics is termed Saṅkīrṇa (LXVI.1-5). The four categories are also named by Kauṭilya[10] and Someśvara.[11] Varāhamihira also refers to four other kinds forbidden for domestication, viz., 1. Kubja, 2. Vāmanaka, 3. Matkuṇa and 4. Ṣaṇḍha (LXVI. 10). Of these, Matkuṇa is known to Kauṭilya also.[12] As we have seen above, ivory was employed in decorating furniture. Varāhamihira refers to elephants hailing from swampy and mountainous regions (XCIII.1).[13] The tiger (*vyāghra*[14], *śārdūla*[15]) with its bluish-red eyes (LXXIX.9), bear (*ṛkṣa*[16]), hyena (*tarakṣa*[17]) and

1. L.19; LXXXVI.42, etc.
2. LXXXVIII.1.
3. XXVII.4.
4. XXIV.15.
5. LXXXVI.42.
6. V.33.
7. XLIX.24.
8. The following is based on *BS*, Hastilakṣaṇādhyāya, Ch. LXVI.
9. Bhadra is also named in LXXX.20.
10. *Arthaśāstra*, II.31, p. 137.
11. *Mānasollāsa*, Vol. II, p. 192. v. 35.
12. *Arthaśāstra*, II.31, p. 136. For the definition of these four varieties, see the anonymous verses quoted by Utpala on LXVI.10.
13. Cf. *Arthaśāstra*, II.32, p. 139.
14. XLIII.13; XLVII.76; L.19; LXVII.17, 37; LXXXV.28.
15. LXVII.115; CIII.4; XII.6.
16. LXXXV.21, 28, 42.
17. XII.6.

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monkey ((*kapi*,[1] *vānara*[2], *śākhāmṛga*[3]) inhabited the Vindhyas (XII.6), while the yak (*camarī*), roaming among the Himālayas, supplied its hair for fly-whisks (LXXI.1-2). We have also references to the cat (*biḍāla*,[4] *mārjāra*,[5] *vṛṣadaṁśa*[6]) noted for being hostile to rats (XCVI.12) and for eating the flesh of its own species (LXXXV.65), the deer, both buck (*mṛga*,[7] *hariṇa*[8]) and doe (*mṛgī*[9]), with their young ones (CIII.28) and no less than nine varieties, namely, *kuraṅga*,[10] *ruru*,[11] *rohita*,[12] *ṛṣya*,[13] *pṛṣata*,[14] *eṇaka*,[15] (a black antelope), *kṛṣṇasāra*[16] (spotted antelope), *chikkāra* or *dhikkāra*[17] and the musk-deer,[18] the boar (*śūkara*[19], *varāha*,[20] *kroḍa*[21]), the bison (*mahiṣa*[22]), the wolf (*vṛka*[23]), the panther (*dvīpin*[24]), the jackal, both male (*śṛgāla*[25], *gomāyu*[26], *kroṣṭuka*[27], *jambuka*[28], *lomāśa*[29]) and female (*śivā*[30], *loma-*

1. XXXIII.9; LXVII.18, 37; LXXVIII.24; LXXXV.38; XCIII.5.
2. LXVII.104; LXXXV.48; LXXXVI.9; LXXXVII.28.
3. XII.6; XXIV.21; XXVII.4.
4. IX.40; LXXXVII.35.
5. XXVIII.5; LXVII.64; LXXXV.65.
6. XLVII.76.
7. XLVII.14; XC.1. When used in association with *kuraṅga* (LXXXV.23, 26) and *pṛṣata* (LXXXV.38; LXXXVII.33), *mṛga* seems to denote a kind of deer, not deer in general.
8. CIII.28; LXVII.65.
9. XLVII.13.
10. LXXXV.23, 26, 48; LXXXVII.33.
11. XLVII.76; LXXXV.38, 48.
12. LXXXV.26.
13. LXIV.2, 8.
14. LLVII.76; LXXXVII.3, 33.
15. LX.13.
16. LX.7.
17. In LXXXV.20, Utpala explains *chikkāra* as *mṛga-jāti* and in LXXXV. 44 as *śṛgāla*. *Dhikkāra*, which is mentioned as synonymous with *mṛgajāti* in LXXXVII.7, seems to be an error for *chikkāra*. It is evidently the same as the deer popularly called *chikārā*.
18. Implied in the use of '*mṛga*' for musk, LXXVI.12, 1 26, 27.
19. IX.40; LXXVIII.34; LXXXV.27; XCIV.47.
20. LXVII.104.
21. LXXXV.42; LXXXVII.9.
22. XXIV.15.
23. LXIX.22; LXXXV.27.
24. LXXXV.28; LXXXVII.3.
25. LXVII.4.
26. LXX.12; XCVI.9.
27. LXXXV.21.
28. XLV.67.
29. LXXXV.22.
30. LXXXV.37; LXXXIX.3, 5, 11, etc.

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śikā[1]), the porcupine (*śalyaka*[2], *śvāvidh*[3]), the hare (*śaśa*[4], *śaśaka*[5]), and the pole-cat (*jāhaka*[6]).

DOMESTIC ANIMALS. The kine (*go*[7], *dhenu*[8], *surabhi*,[9] *usrā*[10]) constituted an important item of wealth (IV.14; XIX.7, 14) and had come to be regarded as sacred.[11] Cows and oxen (*vṛṣa*,[12] *go*[13], *go-pati*,[14] *anaḍuh*[15], *surabhi-tanaya*[16], *ukṣan*,[17]) went out for grazing in the morning and returned home in the evening (XXIV.35). Herds of cows (*gokula*, IX.20; XIX.14) and cow-pen (*goṣṭha*, LXXXVIII.9) are also mentioned. Oxen were yoked to ploughs (XLV.62) and used as beasts of burden (LX.9, 14, 16). Varāhamihira refers to oxen with eyes hued like a beryl, a *mallikā* flower and a water-bubble (LX.14). Utpala states that eyes resembling a *mallikā* flower form really a characteristic of horses and quotes in his support an anonymous Prakrit verse[18] and a stanza from Śālihotra[19], according to which a horse with dark pupils and eyes surrounded by white rings is termed Mallikākṣa. A white ox with tawny eyes, copper-coloured horns and a large face was called Haṁsa (LX.17).[20]

1. LXXXIX.2.
2. LXXXV.23.
3. LXXXVII.3
4. LXXXV.22, 26, 42.
5. LXXXVII.2, 21.
6. LXXXV.43.
7. IV.11, 14; V.33, etc.
8. XII.16; XLV.55.
9. XL.3; XLV.55.
10. LXXXVI.22; LXXXVII.9.
11. In VIII.42, cow is associated with temples and Brāhmaṇas. A cow was made to stay at the house-site for a night before the construction began (LII.96). Also cf. XLVII.11.
12. XII.6; XV.16; XXIV.35; XLVII.76.
13. XLV.62.
14. LXVII.115.
15. XCIV.24.
16. XL.3.
17. XLV.55.
18. उज्जू अकिसणकन्ती तारन्ते ई समल्लिआकुसुमे ।
भाविज्जइ अच्छीइं जाणं ते मल्लिआअच्छा ॥
Sudhakara Dvivedi renders it into Sanskrit as follows :—
ऋजुनी अकृष्णकान्तिनी तारान्ते समल्लिकाकुसुमे ।
भाव्येते अक्षिणी येषां ते मल्लिकाक्षाः ॥
19. शुक्लराजिपरिक्षिप्ते यस्यान्तर्लोचने शुभे ।
मल्लिकाक्षो महाधन्यः स महाकृष्णतारकः ॥
20. For the defects and merits of cows and oxen, see Ch. LX.

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Of goats (*aja*,[1] *basta*,[2] *chāga*[3]), Varāhamihira refers to four kinds—(1) Kuṭṭaka, a goat which leads a flock and enters in water first and has white head or six dark spots on its head; (2) a goat coloured like pounded sesamum (mixed white and yellow), having spotted head or neck and copper-red eyes, or a white goat with black legs and *vice versa* is termed Kuṭila; (3) Jaṭila is a white goat which walks with a jingling sound and has black testicles and a black band in the middle; and (4) Vāmana, a goat with blue hair and feet, or with slightly white fore part and blue hind-part (LXIV.5-9).[4]

The age of a horse (*aśva*,[5] *turaga*,[6] *turaṅgama*,[7] *turaṅga*,[8] *vāji*,[9] *haya*[10]) and mare (*vaḍavā*[11]) was determined in terms of the number of their teeth. Thus, we are told that a colt of one year has six white teeth; they turn tawny when it is two years old; the incisors, the middle and the last teeth fall and reappear at the age of three, four and five respectively; the same three teeth beginning with the incisors become black, yellow, white, hued like glass, *mākṣika* (?) and conch-shell, hollow and shaky and fall at the age of eight, eleven, fourteen, seventeen, twenty, twenty-three, twenty-six, twenty-nine and thirty-two respectively.[12] Jayadatta Sūri also tells us that a horse deve-

1. XXIX.7; XXXVIII.2; XLIV.8; XLV.94, etc.
2. LXXV.5; XLIX.24.
3. LXIV.1, 7, 8.
4. For good qualities and defects of goats, see Ch. LXIV.
5. XLV.94; XVI.22; XIX.3, etc.
6. VII.6; X.3; XI.4, etc.
7. XCII.6, 9.
8. V.72.
9. V.41; XVIII.5; XXIX.7, etc.
10. V.66; IX.43; XXVI.8, etc.
11. XLV.52; XLIX.24.
12. षड्भिर्दन्तैः सिताभैर्भवति हयशिशुस्तैः कषायैर्द्विवर्षः
सन्दंशैर्मध्यमान्त्यैः पतितसमुदितैस्त्र्यब्धिपंचाब्दिकाश्वः ।
सन्दंशानुक्रमेण त्रिकपरिगणिताः कालिकाः पीतशुक्ला :
काचा माक्षीकशंखावटचलनमतो दन्तपातं च विद्धि ॥
LXV.5.

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lops its teeth and testicles at the age of two to five years.[1] Similar directions for ascertaining the age of a horse from the number of its teeth are found in Nakula's *Aśva-cikitsita* (Ch. V), composed before A. D. 1000.[2] Ten hairy circles (*āvartas*), one on the lower portion of the upper lip (*prapāṇa*), one in the hair of the forehead (*lalāṭa-keśa*), and two each in the interval between the belly and the navel (*randhra*), above it (*uparandhra*), on the head and the breast, were considered to be an essential quality of a good horse (*dhruvāvartas*, LXV.4). Jayadatta Sūri's *Aśva-vaidyaka* (III.70-72) refers to these circles by divine names, viz., Māruta, Hutāśana, Skanda and Viśākha, Hara and Hari, Candra and Sūrya, and Aśvins, and regards a horse lacking even in one of these circles as inauspicious.[3]

Dogs (*kukkura*[4], *śvan*,[5] *sārameya*[6]) and bitches (*kukkuri*[7]) were kept for watching (XXVIII.9-10; LXI.1-2). A dog with five nails each in three legs and six in right fore leg, red lips and muzzle, the gait of a lion, shaggy tail, eyes like those of a bear, and long and soft ears and which smells the ground while running is recommended for being tamed as a watch-dog (LXI.1). Similarly, a bitch with five nails in three feet and six in left fore leg, eyes surrounded by white lines, crooked tail, and long tawny ears is recommended for domestication (LXI. 2). Mention is also made of buffaloes, both male (*mahiṣa*)[8] and female (*mahiṣī*[9]), asses (*gardabha*,[10] *khara*,[11] *vāleya*[12]) noted

1. *Aśva-vaidyaka*, III.156-7.
2. For the date of Nakula's *Aśva-cikitsita*, see P. K. Gode, *Studies in Indian Literary History*, II, pp. 161-68.
3. For other details about horses, see LXV.1-4.
4. XXVIII.9, 10.
5. XLV.70; LXI.1; LXVII.4; LXXXVIII.1, XCVI.8.
6. LXXXVII.9.
7. LXI.2.
8. III.35; XL.3; LXVII.31, 104, etc.
9. IX.40; XCI.3; CIII.61.
10. LXVII.95, 108; XLIV.9; LXXXVII.5.
11. III.35; IX.40; XVI.33, 35; XXXIII.9, etc.
12. LXXXV.26; LXXXVII.5.

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for rough voice (LXVII.95), camels (*uṣṭra*,[1] *karabha*[2]) with their crooked necks (LIII.62), mules (*vesara*[3]), a hybrid species begotten by an ass on a mare (LXXXV.66), and sheep (*avi*[4], *avika*,[5] *huḍu*[6]).

BIRDS. Of birds (*khaga*,[7] *pakṣin*,[8] *patatrin*,[9] *aṇḍaja*[10], *vihaga*[11], *vihaṅga*,[12] *śakuni*[13]), we have references to the peacock (*mayūra*,[14] *śikhin*,[15] *barhin*[16]) crying at the approach of rain (XXIV.19), pigeon (*kapota*[17]) with its three kinds, viz., grey, variegated and saffron-coloured (LXXXVII.1, 12-13), its female (*kapotakī*,[18] *śyāmā*[19]), parrot (*śuka*[20]) noted for its beautiful nose (LXVII.60), crow (*kāka*,[21] *dhvāṅkṣa*,[22] *vāyasa*[23]) with its slightly blue egg (XXVIII.4) and the habits of eating flesh (XCIV.41), transmitting food into the mouth of each other (XCIV.43) and laying two, three or four eggs at a time (XCIV.6), blue jay (*cāṣa*[24]), owl (*ulūka*,[25] *kauśika*[26]), hawk (*śyena*[27]), vulture (*gṛdhra*[28]), heron (*kaṅka*[29]), wagtail (*khañjana*[30], *khañjanaka*[31]) with its four varieties, viz.,

1. XVI.33; XXIV.21; XLIV.9; LIII.106, etc.
2. III.35; XXXIII.9; XLI.7; LIII.62, etc.
3. XVI.19.
4. XXIX.7; L.19.
5. XXXVIII.2; XLIV.8.
6. XLIX.24.
7. III.38; XV.13; XLVII.13.
8. XXI.16; XXIV.12; XLV.91, 94.
9. XXIV.25.
10. VIII.4; IX.30; X.20; XVI.28; XXX.5, etc.
11. III.35; V.55.
12. XV.3; XXX.7; XLV.66.
13. LXXXVI.34.
14. XXVIII.14; LXXII.1; CIII.26.
15. III.28; XXIV.19; XXXIV.4, 6; LXXXV.20, etc.
16. XXXIII.26.
17. XXVIII.11; XLII.61; XLV.67. For its colour, cf. V. 56; LIII.82.
18. LXXXVII.5.
19. LXXXV.37; LXXXVII.5, 14.
20. VII.20; XXVIII.11, 14; XLVII.6; LXXXVII.11; SCII.4.
21. XXVIII.4; XLII.62; XLIX.3, etc.
22. XXIV.21; LXXVIII.24; XCIII.5.
23. XCIV.17. For omens from crows' movements, see Ch. XCIV.
24. XXVIII.14; XXXIV.4; XLII.62; XLVII.6; LXXXV.23, 43, 48; LXXXVII.23-25.
25. LXXXV.21, 49; LXIX.22; LXX.12; LXXVIII.24; LXXXVII. 36; XCIII.5.
26. XLII.62; XLV.67; XLVII.4.
27. XLII.62; XLV.67, 68; LXXVIII.24, etc.
28. XLVII.4; LXXVIII.24; LXXXVII.11; XCIII.5; XCVI.9, etc.
29. XLII.62; XLIX.3; LXIX.22; LXX.12; XCIV.46.
30. XLIV.3, 6, 10, 11, 15.
31. XLIV.1; LXXXVII.20.

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Bhadra (with stout body and black raised neck, Sampūrṇa (dark from the face to the neck), Rikta (with white cheeks and a dark spot on the neck) and Gopīta (yellow),[1] cuckoo (*kokila*)[2] brought up by others, i.e., crow (*anya-bhṛta*,[3] *para-puṣṭa*[4]), its male (*puṁskokila*[5]), cock, both male (*kukkuṭa*[6], *kṛkavāku*[7], *tāmracūḍa*[8] and female (*kukuṭī*[9]), along with the variety called *gartā-kukkuṭa* or *kulāla-kukkuṭa* (LXXXVII 8, 22), sky-lark (*bhāradvāja*)[10] along with its female (*bhāradvājī*[11]), sparrow (*caṭaka*[12], *kalaviṅka*[13]) noted for its strong sexual desire (LXXV.7), hen-sparrow (*caṭikā*, *sūkarikā*[14]), *jīvajīvaka*[15] (a pheasant), *hārīta*[16] (a kind of pigeon), wood-pecker (*śatapatra*)[17], francoline partridge (*tittira*[18]), bee-eater (*divyaka*, *dhanvana*)[19], the Greek partridge (*cakora*), *ulūkaceṭī*, also known as *piṅgalā*,[20] *piṅgalikā*, *pecikā*, and *hakkā*[21] (a kind of owl or a crane, LXXXVII.4), *sārikā* (talking maina, *Garcula religiosa*, LXXXVII.30), *valgulī* (LXXXVII.2), a nocturnal bird, *pīppīkā* (LXXXV.38), *bhāṇḍīka* also called *durbalika* (LXXXVII. 7,28-30), *aṇḍīraka* (LXXXVII.26), *naptṛka* (LXXXV.49),

1. For omens from wagtails' movements, see Ch. XLIV.
2. XLV.68 (warbling in dewy season inauspicious); LXXXV.23, 26.
3. XLVII.14; XCIV.11.
4. LXIX.7; LXXXV.37.
5. XLVII.7.
6. XLV.68 (crowing in the evening inauspicious); LXXXV.20, 48; LXXXVI.6.
7. XXVIII.6; XLVII.6; LXXII.1. Utpala takes *kṛkavāku* to mean *jala-kukkuṭa* (on XXVIII.6), but Varāhamihira regards it as synonymous with *kukkuṭa*, cf. LXXXVII.7. Cock-fighting is alluded to in LXII.2.
8. LXXXVII.34.
9. LXII.3. For signs of cocks and hens, see Ch. LXII.
10. LXXXV.4. According to Utpala, it was popularly known as *lāṭa*.
11. LXXXVII.15.
12. LXXV.6.
13. LXVI.6, *grāma-caṭaka* according to Utpala.
14. LXXXVII.9.
15. XLVII.6.
16. XLVII.6; LXXXV.21; LXXXVII.15.
17. XLVII.6; LXXXV.21.
18. XXVIII.17; LXXXVI.7; LXXXVII.21.
19. LXXXVII.9, 18.
20. XLVII.6.
21. LXXXV.21, 37, 49. For its movements, see LXXXVII.38-47.

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pheṇṭa (LXXXVII.1, 26) or *pheṇṭaka* (LXXXVII.31), *pirilī* (LXXXV.20, 44), *siṁhanāda* (LXXXV.20), *krakara* (a kind of partridge, XLVII.6), *kūṭapūrī* (LXXXV.20, 44), also known as *karāyikā* (LXXXVII.16-17; XCIV.1), *bhaṣa*, *bhaṣaka* (LXXXV.38), *kūṭapūra*, *kurabaka* and *pūrṇakūṭa* (a small kind of crane, LXXXVII.4), *plava* (a kind of duck, LXX.12), *śrīka* (XLVII.6) or *śrīkaṇṭha* (LXXXV.38), *śrīkarṇa* (LXXXV. 38; LXXXVII.27), *kapiñjala* (a kind of partridge XLVII.6; LXXXV.22), *bhāsa*[1] (LXXXV.38), *pārāvata* (turtle-dove, XLVII.6; XLIX.25; LIII.10, 108), *vañjula* (XLVII.6; LXXXV.20, 48) also called *vañjulaka* and *khadira-cañcu* (LXXXVII.5, 11), *cātaka* (*Cuculus melanoleucus*, XXVIII.14; LXXXV.27) crying in rains (XXIV.19), *koka*[2] (a ruddy goose or cuckoo, LXXXV.21), *kāraṇḍava* (a duck, XLVII.9; LV.5), *cakravāka* (a ruddy goose, *cakavā* in Hindi, LV.5), *haṁsa* (a swan[2] eating lotuses (*abjāda*, LXXXV.27), *kalahaṁsa* (a sort of white goose with red beak and legs,[4] XLVII.10; LXIX.7) noted for its sweet voice, *balākā* (a small crane, XXIV.17), *sārasa* (XLVII.9; LXXII.1; LXXXVII.37), *kurara* (XLVII.9) or *utkrośa* (an osprey, LXXXV.22) and *krauñca*[5] (a curlew or heron).

REPTILES. Amongst reptiles (*sarīsṛpa*) are mentioned serpents (*ahi*,[6] *bhujaga*,[7] *bhujaṅga*,[8] *oyāla*,[9] *sarpa*,[10] *phaṇin*[11]) with their white belly and black back (XXIV.13; LIII.66), mungoose (*nakula*[12]) noted for its hostility towards rats (XCVI.12), mice (*ākhu*,[13] *mūṣaka*[14]), squaint-eyes (*kekara*, LXVII.65), musk-

1. Cf. *Mahābhārata*, I.132.68. Nilakaṇṭha tells us that it is a bird with blue wings or a vulture—*bhāsaṁ nīla-pakṣaṁ pakṣiṇaṁ śakuntam=ity=anye, gṛdhram=ity=apare.*

2. *Koka* and all the following birds are described as living in the proximity of water. *Koka, kāraṇḍava, cakravāka* and *haṁsa* are represented as moving on water in autumn, XII.4, 8, 11.

3. XLVII.9; LV. 4·5, 7; LXXII. 1; LXXXV.22.

4. Cf. *Amara*, II.5.24—*rājahaṁsās=tu te cañcu-caraṇair=lohitaiḥ sitāḥ.*

5. VL.5, 6; LXXXV.22, 27; XCII.7.

6. XXXIII.9; LIII.11, 33 (*ahi-nilaya*), 36 (*ahirāja*), 41 (*ahi-saṁśraya*), 42, 67 (*ahi-gṛha*), 68 (*ahivāsa*), 85, 88 (*ahi-nilaya*).

7. XVI.33; XXIV.13; LIII.28, 46, 66.

8. XII.12; LIII.70 (*bhujaṅga-gṛha*); LXXVIII.24; XCIII.5.

9. VI.3; XVI.5.

10. LIII.38 (*sarpa-vāsa*); LII.121; LXVII.20; LXXXV.65.

11. XII.12 (water polluted by serpents' poison); LXXXVII.19.

12. LIII.32, 71; LXXXV.41. 43.

13. VIII.4; XLIX.25; LXXXV.23; XCVI.7.

14. XLVII.14; LII.121; LIII.20; LXX.2; LXXXV.65; XCIV.4.

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rats (*chuchchhū*,[1] *chchhundarī*, *nṛpa-sutā*[1a]) and lizards of various kinds, viz., *godhā* (big lizard)[2], *saraṭa*,[3] *kṛkalāsa*[4] (a lizard which frequently changes its colour), *chippikā*[5], *gṛhagodhikā*,[6] *kuḍya-matsya* (small house-lizard).

AQUATIC ANIMALS. Of aquatic animals, mention is made of alligators (*nakra*, XXVIII.14; XXXIII.9; *makara*, LXVIII.17; *grāha*, XCIII.14) capable of devouring elephants; various kinds of fish (*matsya*,[7] *jhaṣa*[8], *mīna*,[9] *pṛthu-loman*[10]), viz., Rohita (Rohī in Hindi, LIII.15), Śapharī (a smaller variety, LV.6), that smelling like a goat (*ajagandhaka*, LIII.22) and Timi (whales, XII.3) noted for its white complexion (XII.5), oysters (*śūkti*), conch-shells (*śaṅkha*, XII.4), watery serpents (*jala-jihmaga*) and elephants (*jalebha*, XII.3), frogs (*maṇḍūka*,[11] *dardura*[12], *bheka*[13]) yellow, black or green in colour (LIII.7, 18, 30, 39, 67) and crying at the approach of rains (XXIV.19; XXVIII.4), and tortoises (*kūrma*, LIII.44; LXIII.1, 13; *kacchapa*, XXVIII.14; *kacchapaka*, LIII.34), kept in pleasure lakes or wells (LXIII.3).[14]

INSECTS. Of insects, there were mole crickets (*ralā*, *srotobhedya*, *taḍāgabhedya*, *ekaputraka*, *kalahakārikā*, LXXXV.37; LXXXVII.6) with their body measuring two *aṅgulas* and crying at night, scorpions (*vṛścika*, XLIX.3; LIII.73), locusts (*śalabha*, VIII.4), flies (*makṣikā*, XCVI.7)[15], ants (*pipīlikā*) indicating rain when they shift their eggs (XXVIII.7) or carry them from a low-lying place to a tree or an elevated ground and drought

1. LXXXV.37.
1a. LXXXVII.5, 47.
2. XXXIII.9; LII.120; LXXXV.42; LIII.1 3(white), 69 (tawny); LXXXVII.3.
3. LII.121; LXXXV.41. Utpala (LXXXV.41) says that *saraṭa* is a bird, but to some it is the same as *kṛkalāsa*.
4. XXVIII.8; XLIX.3; LXXVIII.24; XCIII.5.
4a. LXXXVII.2, 35 (Hindi *chipkalī*).
5. LIII.16; LXXXV.37 (*pallī* according to Utpala); LXXXVII.47.
6. LXXXVII.8.
7. XXX.8; XL.8; LIII.10, 15, 22 (*matsyaka*), 94.
8. XXVIII.4; XXXIII.10; XLIX.24.
9. XXVIII.14; LXVII.44, 45; LXXXVI.7.
10. LXXXV.65.
11. XXVII.7; XXVIII.4; LIII.7, 18, 30, 39, 67; LXVII.17.
12. XXIV.19; LIII.31, 32, 64.
13. LII.121.
14. For good qualities of a tortoise, see Ch. LXIII.
15. A blue fly clinging to the head is said to cause death, XCIV.58.

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when they throw them in water (XCIV.59) and various kinds of bees, namely, *madhukara* (XXIV.14) or *ṣaṭcaraṇa* (large black bee, CIII.17, 32) and *madhu*[1] (honey-making bees, XCIV.58).

We may conclude our study of fauna with a few general remarks. The mule was recognised as the only hybrid breed, other animals cohabiting with different species being supposed to augur calamity (XLV.55; LXXXV.66). The serpent, mouse, cat and fish eat the flesh of their own species (LXXXV. 65). The delivery of twins by a mare, camel, buffalo, cow and she-elephant is said to bring about their death (XLV.52). The dewy season, it is stated, is the mating period of the *rohita*, horse, goat, ass, *kuraṅga*, camel, deer and hare; the spring season, of the crow and cuckoo; Bhādrapada, of the boar, dog and wolf; the autumn, of the swan, cow and *krauñca*; Śrāvaṇa, of the elephant and *cātaka*; and winter, of the tiger, bear, monkey, panther, buffalo and the burrow-dwellers (LXXXV.26-28).[2]

1. A honey-comb inside a house, it was believed, makes it empty.

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1a. LXXXVII.5, 47.
2. XXXIII.9; LII.120; LXXXV.42; LIII.1 3(white), 69 (tawny); LXXXVII.3.
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7. XXX.8; XL.8; LIII.10, 15, 22 (*matsyaka*), 94.
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9. XXVIII.14; LXVII.44, 45; LXXXVI.7.
10. LXXXV.65.
11. XXVII.7; XXVIII.4; LIII.7, 18, 30, 39, 67; LXVII.17.
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III

ARTS AND CRAFTS

The remarkable advance of industry and of technical skill in all branches of arts and crafts and the ever-expanding activity which our period witnessed led to a phenomenal rise in the number of specialised occupations practised by the people. The following information is elicited from Varāhamihira's works.

I. *Arts and Crafts*

IVORY. Of the numerous arts and crafts practised by the people that of the ivory-carver was one of the most important. Though due to the extreme fragility of the material, very few specimens of ancient Indian ivory carving have been recovered by the spade of the archaeologist,[1] literary[2] and epigraphic[3] evidence leaves no room for doubt regarding the high antiquity and prosperous condition of this art. Ivory was put to various uses, one of them being, as stated above, inlay with wooden furniture. The demand of ivory objects was so pressing that it could not be satisfied by the immense indigenous resources and recourse had to be taken to imports from outside. Cosmas Indicopleustes, who travelled through India in the middle of the sixth century A. D., informs us that India imported ivory from Ethiopia where elephants were more numerous and their tusks larger than those of their counterparts in India.[4]

1. Special reference must be made to the remains of Indian ivory work found among the ruins of Pompei in Compania (*Annual Bibliography of Indian Archaeology* (1938), Vol. XIII, pp. 1-5; S. K. Saraswati, *A Survey of Indian Sculpture*, pp. 90-92, Pl. XVII, fig. 79) and a magnificent collection of fragments of Indian ivory toilet from Begram in the ruins of the palace of Kaniṣka (*Annual Bibliography of Indian Archaeology*, 1937, pp. 30-33; B. Rowland, *The Art and Architecture of India*, p. 91, Pl. 51; Saraswati, *op. cit.* pp. 92-3, figs. 67, 72, 78). Also *vide JNSI*, XVI. p. 73, Pl. 2.23; *Indian Archaeology* for 1959-60, pp. 24, 51; *ASI*, *AR*, 1911-12, pp. 48, 93.

2. Cf. *Raghuvaṁśa*, XVII.21; *Harṣacarita*, Ch. VII.

3. *Lüders' List*, No. 345.

4. Cosmas XII; McCrindle, *Ancient India as described in Classical Literature*, p. 165.

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Varāhamihira refers to ivory objects (*nāgadantaka*, LII.60; *dantaghaṭita*, LXXXVI.9) and furnishes some interesting information regarding the suitability of the portion of elephant's tusk to be employed in decorating furniture. We are told that the portion of the tusk equal to two circumferences at the bottom which is hollow should be rejected. In the case of elephants hailing from marshy regions (*anūpa*) a little more portion is to be rejected, and in the case those hailing from a mountainous tract, a little less.[1] The same direction is contained in the *Arthaśāstra* which adds that the tusks of the elephants born in a region irrigated by rivers should be cut off once in 2½ years, while those of the elephants hailing from a mountainous region once in five years.[2] Great emphasis was laid on the excision of the tusk and good or bad results were anticipated according as the figures made by exicision were of auspicious or inauspicious objects.[3] Generally speaking,

1. दन्तस्य मूलपरिधिं द्विरायतं प्रोज्झ्य कल्पयेच्छेषम्,
अधिकमनूपचराणां न्यूनं गिरिचारिणां किञ्चित् ॥
, LXXVIII. 20;XCIII.1.

Cf. Utpala on LXXVIII.20— गिरिचारिणां पर्वतचारिणां न्यूनमपि प्रोह्य शेषं कल्पयेद् यतः पर्वतशिलास्तद्दन्तान् घर्षन्ति । दन्तमूलपरिणाहदीर्घतां द्विः प्रमुच्य परतोऽस्य कल्पयेत् । *By*, XXI.7.

2. दन्तमूलपरीणाहद्विगुणं प्रोज्झ्य कल्पयेत् ।
अब्दे द्व्यर्धे नदीजानां पञ्चाब्दे पर्वतौकसाम् ॥
Arthaśāstra, II.32. p. 139.

3. Thus figures resembling *śrīvṛkṣa*, Vardhamāna symbol, parasol, banner and fly-whisk were believed to ensure good health, victory, increase of wealth, and happiness. If the venation resembled a weapon, it indicated victory in war; one like the Nandyāvarta symbol, recovery of lost territory; one like a clod (*loṣṭha*), full occupation of a conquered territory; one like a woman, loss of wealth; one like *bhṛṅgāra*, the birth of a son; one like a pitcher, acquisition of treasure; one like a rod, hindrance to a journey; those resembling a lizard, monkey and serpent, famine, disease and oppression by an enemy respectively; those like a vulture, owl and crow, pestilence; one like a noose or torso (*kabandha*), king's death. If the venation bleeds or is dark, grey, rough or bad-smelling, bad results must be expected. Vide LXXVIII.21-26; XCIII.2-7. Cf. *Viśvakarma-prakāśa*, X.78. which is verbatim reproduced from LXXVIII.26.

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white, even, fragra it and glossy venation was regarded as auspicious.[1]

Ivory objects formed an important item of India's export trade with the Roman empire. The *Periplus of the Erythraean Sea* (56-62) includes ivory in the list of articles exported from Barygaza and South Indian ports.

Among other animal products we have references to honey[2], bees' wax (*sikthaka*, XXVI.8; *madhūcchiṣṭa*, XVI.24), musk (*mṛga*, LXXVI.12, 27; *kastūrikā*, LXXVI.16), pearls (Ch. 80), corals (LXXIX.5), conches (VII.6; XIV.4; XV.25, etc.), fly-whisk (Ch. 71), hide (XLI.6) and leather articles (LXXXVI.8) like containers (*ΥΥ*, I.4) and footwears (*upānah*).[3] Skins of oxen, lions, tigers and wild cats were used as seats, especially while observing religious rites (XLVII.43-5). We have references to tanners (*carmakara*, LXXXVI.35; *carmaśilpin*, LXXXVI.8) also.

METAL-WORK. Metal industry had reached a high watermark of development long prior to Varāhamihira. Mention is made of mines (*ākara*),[4] spoken of as a source of prosperity to the country (*ākarāḍhyā*, XIX.6, 17), and miners (*ākarika*).[5] As will be shown in a subsequent section, at least twenty-three precious stones are named. As for metals (*dhātu*, XVI.14; CIII.12, 61), we find mention of gold (*kanaka*,[6] *kāñcana*,[7] *cāmīkara*,[8] *niṣka*,[9] *suvarṇa*,[10] *hiraṇya*,[11] *hema*,[12] *śātakumbha*[13]), silver (*rajata*,[14] *rūpya*[15]),

1. Cf. also *BY*, XXI. 7-8.
2. V.60; XV.9, etc. For other references vide *supra* Ch. IV, Section 3.
3. BS, Vol. I, p. 73.
4. XVI.14; XIX.10; LXXIX.10; CIII.12, 61.
5. XV.1. Cf. *BJ* X.3, which refers to earning livelihood by mining.
6. I.1; III.23, 36; XVI.4; XXIX.8; XL.2; XLIII.12; LXXXV.8; LXXXVI.2, 3, 30.
7. XLVIII.4; LXXVIII.14; XCII.8.
8. XXIV.8; XLII.33.
9. LXXIII.7.
10. XL.7; XLI.6; LIX.4; XCIV.20; CIV.7, 8.
11. V. 74; XXIX.10; LIX.17; XCVI.13.
12. VII.20; XXVI.9; XLIV.6; LIII.110; *BY*, X.3.
13. XII.20.
14. XI.14; XVI.26; XXI.23; XXVI.9; XXIX.6; XXXIII.10; XXXIV.4; XLI.6; XLIII. 12; XLVII.46; L. 19; LXIII.1; LXXX.26.
15. L. 17; XCIV.15; LXXXV.80.

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copper (*tāmra*[1]), iron (*kṛṣṇāyasa*,[2] *kṛṣṇa-loha*[3]), glass (*kāca*[4]), lead (*sīsaka*[5]), bell-metal (*kāṁsya*[6]) and iron-rust (*rītikā*[7]). The goldsmith (*hiraṇyapaṇya*, V.74; *hairaṇyaka*, LXXXVI.32, *suvarṇakāra*, LXXXVI.30) satiated the aesthetic sense of the people by manufacturing ornaments. Gold was used in fashioning weighing balances, sacrificial ladles, thrones and images and in covering bed-steads.[8] Certain processes adopted by workers in gold are repeatedly alluded to, e.g., melting (*druta-kanaka*, I.1; XXVIII.3). heating in the fire (*santāpa*,[9] *paritāpa*[10]), whetting at touch-stone (*nikaṣa*[11]), and hammering for testing its purity (*abhiniveśa*[12]). The heating of copper, evidently for casting it into various shapes, is also referred to (VI.13). As one of the major processes followed by smiths in their work is heating the metal in fire, they are often described as 'earning their livelihood by fire'.[13] It is usually held that, as at present, silver was not mined in ancient India also.[14] It is, therefore, interesting to note that Varāhamihira shows acquaintance with silver-mines (*rajatākara*, XVI.26). That silver was probably mined in India in those days would appear from a perusal of Yuan Chwang's account; he tells us that 'gold, silver, Ti-shih (bronze)...etc. are products of the country which are very abundant.'[15] We learn from him that gold and silver were obtained from Bolar (Little Tibet), Ṭakka, Kulūta, and Śatadru in Panjab, and from Sindh. Weighing balances, ladles, vessels,

1. III.21, 23; VI.13; XLVII.46; L. 17; LIX.5.
2. LXXXVI.26.
3. XL.7; CIII.63.
4. XL.8, 10; XLIV.12; LXXXVI.23.
5. LVI.8.
6. XL.6; LVI.8.
7. LVI.8.
8. XXVI.9; XLIII.12; XLVII.46; LIX.4; LXXVIII.14.
9. *BS*, Vol. I, p. 65.
10. III.36.
11. *BS*, Vol. I, p. 65; IX.44.
12. निकष-सन्तापाभिनिवेशैः कनकस्येवाधिकतरममलीकृतस्य ।
BS, Vol. I, p. 65.

Cf. Utpala—निकषं निर्घर्षणं पाषाणतले । सन्तापोऽग्नौ परितापनम् ।
अभिनिवेशो यन्त्र-च्छेदन-संघट्टनमेतैः सुवर्णमधिकतरममलं भवति ।

13. *Jīvanti ca ye hutāśa-vṛttyā*, V.35; *agny upajīvin*, V.28; X.4; *agnivārta*, VI.1; XVII.13; *analājīvin*, LXXXV.29; *analopajīvin*, V. 69; *analājīvika*, XCIV. 21; *analopajīvaka*, VIII.3; *hutāśa-vṛtti*, V.53; *hutāśanājīvin*, XVI.12.
14. Cunningham, *Coins of Ancient India*, p. 5.
15. Watters, Vol. I, p. 178.

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statues and thrones were fashioned from silver.[1] Copper thrones (XLVII.46) and images (LIX.4) are also noticed. Many specimens of copper sculptures have been reported in archaeological excavations. The most outstanding example of copper-work in the Gupta age is the colossal Buddha image, 7½ feet high, from Sultanganj, now in the collection of the Bermingham Museum.[2] In a six-storeyed building at Nālandā Yuan Chwang found 'king Pūrṇavarmā's copper image of Buddha more than 80 ft. high.'[3] For manufacturing images of such extraordinary dimensions large copper-foundries must have been needed.

The words *loha* and *ayas* were used as generic names for less costly metals in general as is clear from the use of the former in plural (XXVIII.5; XL.6).[4] In his gloss on XL.6, Utpala says that *loha* may denote iron (*āyasa*) or bell metal (*kāṁsya*). The word *kṛṣṇa* is sometimes prefixed to *loha* (XL.7; CIII.63) and *ayas* (LXXXVI.26) in order to distinguish iron from copper or bell metal. The history of such a loose use of *ayas* goes back to the *Ṛgveda* where its exact connotation cannot be determined precisely. The fact of the accumulation of rust on iron and its musty smell in the rainy season is noticed (XXVIII.5). The best extant illustration of iron-manufacturers'skill is the well-known Meharauli pillar with the inscription of Candra, usually identified with Candragupta II. This iron column which, including the capital, is 23 ft. 8 inches high and weighs more than six tons, is, to quote Percy Brown, 'a remarkable tribute to the genius and manipulative dexterity of the Indian iron-worker.'[5]

POTTERY. Pottery formed one of the most essential necessities of every day life. Like the oil-miller, the potter (*ghaṭakāra*, XV.1; *VP*, 9; *ghaṭakṛt*, XVI.28) also worked with the wheel and was consequently known as *cākrika* and *cakracara* (X.9, 12). Among the clay objects (*mṛṇmaya*, LXXXVI.12) manufactured by him

1. XXVI.9; XLIII.12; LXXX.26; LIX.4; XLVII.46.

2. Smith, *History of Five Arts in India and Ceylon*, p. 82, Pl. 47 B. For a standing female figure in copper from Bhita, see *ASI, AR*, 1911-12, p. 89.

3. Watters Vol. II, p. 171.

4. For the use of *loha* in plural see *Arthaśāstra*, II.17.14.

5. Percy Brown, *Indian Architecture* (Buddhist and Hindu), p. 61, Pl. X.

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may be included a remarkable variety of vessels,[1] burnt bricks (LII.23; LXXXVIII.1), and clay figures and figurines (LIX.4; *VP*, 9ff.). We have a reference in the *Vivāhapaṭala* to the employment of expert sculptors for fashioning such clay figures. Both the wheel-turned and moulded pots reported from excavations at Ahicchattrā, Bhīṭā, Basarh, etc.,[2] attest the remarkable efficiency of potters in their art. Clay figures and figurines were a rage in those days and we have references in contemporary literature to their use for decorative purposes.[3]

WOOD-CARVING. The carpenter (*takṣan*, XLII.20; LXXXVI.20, 24; *vardhakin*, XLII.22) enjoyed a unique position in the rural economy. As he used a measuring thread or rope, he came to possess the secondary designation of *sūtradhāra* (XLII. 12). Vātsyāyana (I.3.16) includes wood-carving (*takṣaṇa*) in the list of sixty-four arts. The carpenter cut trees for his raw material (XLII.12, 19), manufactured conveyances like the cart and raised wooden structures (LII.23).[4] The highly advanced state of the wood-worker's craft is evident from the fact that technical names had to be coined for various kinds of holes in the wood.[5]

MASONRY. Varāhamihira mentions stones hued like a dove (LIII.10, 108), saffron (LIII.26), collyrium (LIII.11, 110), cow's milk (LIII.20), cloud (LIII.30, 107), frog (LIII.32), horse-gram (LIII.36), emerald (LIII.46), copper (LIII.71) and rice-flour (LIII.73). Mention is also made of green (LIII.34) and blackish-white (*dhūsara*, LIII.44) stones and of those called *puṭa-bid*[6] or *puṭa-bhedaka*[7] and *kuruvinda* (corundum, LIII.28), all to be found underground. The last is a precious stone (LXXXI.1) next only to the diamond in hardness. The rocks of the hue of cat's eye, green gram, ripe fig, *bhaṅgāñjana* (a kind of toilet collyrium), honey, *ghee*, linen, *soma* creeper, ashes, camel, ass, bees, *aṅguṣṭhikā* flower, the sun, fire, moonlight, crystal, pearls, gold, sapphire, red arsenic, the rays of the rising sun, and yellow orpiment

1. For references vide *supra* Ch. IV, Section, 7.
2. Cf. *Ancient India*, I (1946), pp. 41 ff. (Ahicchattrā); *ASI, AR*, 1911-12, pp. 84 ff. (Bhita); *ibid.*, 1903-4, p. 93 (Basarh).
3. Cf. *Harṣacarita*, IV; V. S. Agrawala, *Gupta Art*, p. 11.
4. Cf. *Mudrā-rākṣasa*, Act, II, pp. 129-31, where the carpenter Dāruvarman repairs the palace and palace-gates before Candragupta's entry.
5. For these coin-words, see *supra* p. 251, note 1.
6. LIII.42. Cf. Utpala—*Puṭair=bhidyata iti puṭa-bhit puṭa-bhedakaḥ.*
7. LIII.7. Cf. Utpala—*Puṭair=bhidyata iti puṭa-bhedaḥ.*

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as also those of brown and pale white colours and those accompanied by red or variegated spots are also referred to. They were believed to be haunted by the Yakṣas and Nāgas and capable of averting drought (LIII.107-111).

CHEMICAL PREPARATIONS FOR BREAKING ROCKS. Varāhamihira is acquainted with no less than four methods which were employed in breaking hard rocks in those days.

(i) A rock found unbreakable by hammering should be heated in the fire made from the fuel of the *palāśa* and *tinduka* until it assumes the hue of the fire, and then sprinkled with lime water (*sudhāmbu*). Thus it becomes breakable.

(ii) The ashes of the *mokṣaka* tree and reeds should be boiled in water and sprinkled on the rock after it is heated in the above manner. This process should be repeated seven times.

(iii) The butter-milk, *kañji*, liquor, horse gram and jujube fruits should be kept together for seven nights and then sprinkled on the heated rock.

(iv) The leaves and bark of the *neem* tree, sesamum stalks, *apāmārga*, *tinduka* and *guḍūcī* should be burnt down to ashes and steeped in bovine urine. This preparation should be sprinkled seven times on the heated rock. Then it breaks.[1]

II. *Other Occupations*

The oil-miller (*tailika*, X.5; XVI.31) worked with the wheel and was, therefore, called *cākrika*[2] (X.9) and *cakracara* (X.12). In inscriptions, oil-men are referred to as *tailikā*[3] and *tila-piṣaka*[4]

1. भेदं यदा नैति शिला तदानीं पलाशकाष्ठैः सह तिन्दुकानाम् ।
प्रज्वालयित्वानलमग्निवर्णा सुधाम्बुसिक्ता प्रविदारमेति ॥
तोयं श्रितं मोक्षकभस्मना वा यत् सप्तकृत्वः परिषेचनं तत् ।
कार्यं शरक्षारयुतं शिलायाः प्रस्फोटनं वह्निविता पितायाः ।
तक्रकांजिकसुराः सकुलत्था योजितानि बदराणि च तस्मिन् ।
सप्तरात्रमुषितान्यभितप्तां दारयन्ति हि शिलां परिषेकैः ॥
नैम्बं पत्रं त्वक् च नालं तिलानां सापामार्गं तिन्दुकं स्याद् गुडूची ।
गोमूत्रेण स्रावितः क्षार एषां षट्कृत्वोऽतस्तापितो भिद्यतेऽश्मा ॥
LIII.112-115.

2. Cf. Utpala—*Cākrikāś=cakreṇa caranti cākrikāḥ kumbhakāra-tailika-prabhṛtayaḥ.*
3. *CII*, III, No. 16, p. 70, l. 8.
4. *ASWI*, IV, No. 12, p. 104.

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and are represented as having formed their own guilds. The perfumer (*gandhayuktijña*, XV.12; *kācchika*, LXXXVI.41) catered to the aesthetic needs of society by manufacturing various kinds of perfumes. His was a specialised art and an independent science called *gandhayukti* had come into existence. Satisfying the aesthetic needs of the people were also specialists in ornaments (*bhūṣaṇajña*, XV.12), jewellers (*maṇijña*, XV.12; XVI.17), garlandmakers, both male (*mālākāra*, X.9; LXXXV.32) and female (*mālākārī*, LXXVII.9), barbers (*nāpita*, X.9; XV.1; L.5; *nāpitī*, LXXVII.9). toilet-attendants (*prasādhaka*, XVI.17), dyers[1] (*rajaka*, X.5, XV.22; *rāgajña*, XV.12; *rajikā*, LXXVII.9), tailors (*sūcika*, X.9), weavers (*tantu vāya*, XV.12; *kaulika*, LXXXVI.20), architects and sculptors (*sthapati*),[2] musicians (*geyajña*,[3] *gāndharva*,[4] *gāndharvika*[5]), instrumentalists (*vādaka*, X.3), bards (*māgadha*, X.10; *cāraṇa*, XLII.66; LXXXVI.6; *vandin*, XLVII.49; *vṛttaka*, LXXXV.68), dancers, both male (*nartaka*, X.3; XVI.19; XLII.26) and female,[6] actors (*naṭa*,[7] *raṅgopajīvya*[8]), painters (*citrajña*, X.10; *citrakara*, LXXXVI.15; *citrakṛt*, LXXXVI.40; *lekhyajña*, XV.12; XIX.10; *ālekhyajña*, XVI.18) and magicians and jugglers (*indrajālajña*, XVI.18; XIX.10; *kuhakajña*, LXXXV.32; *kuhakajīvaka*, XVI.18; XIX.10).

A very large number of the copper-plate grants of the Gupta and subsequent periods has come down to us. The engraving of these records must have required great skill on the part of engravers and writers (*lekhaka*).[9] *Pustavārta* (LXXXVI.37) is another interesting term in this connection. In Gupta inscriptions mention is often made of an official called *Pustapāla*, probably the

1. Dyeing had developed into a specialised art called *rāgayukti* experts wherein are referred to as *rāgayuktivid*, cf. XVI.17; LXXXVI.17, 41.
2. LII.97, 103, 108; LV.30; LIX.18.
3. XLII.26.
4. XV.3, 9; XVI.17; XIX.10; XXXII.11; LXXXVI.33.
5. XCIV.21.
6. Inferred from XIII.1-2.
7. X.10; XV.9; XVI.19; XLII.26.
8. IX.43.
9. V. 39, 74; X.10; XXXIV.14. In inscriptions *lekhaka* denotes a drafter and is to be distinguished from the composer and engraver, cf. *CII*, III, No. 18, p. 84, l. 24; No. 21, p. 96, l. 20; No. 35, l. 25; No. 40, l.23; No. 80, p. 289, l. 14; *IA*, VII, p. 242.

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Keeper of Records.[1] Mention is also made of another official called *Kāyastha*.[2] The *Prathamakāyastha* referred to in the Damodarpur CP. inscr.[3] was probably 'the chief scribe, who may have acted as chief secretary to the Administrative Board'[4] (*adhikaraṇa*) of which he was a member.

Among others we have references to artisans in general (*kāruak*,[5] *śilpin*,[6] *kalā-vidvas*[7]), dealers in flowers, fruits and roots (*kusuma-phala-mūla-vārta*, V.77; XV.17; *maulika*, IX.32), distillers (*śauṇḍika*)[8], sellers of liquors (*mādhvīkavikraya*, L.5; *rasavikrayin*, (X.8), slaughterers (*saunika*, L.21), fishermen (*matsyabandha*, XV.22; *kaivarta*, XVI.32; XVII.17; L. 21; LXXXVI.7; *dhīvara*, LXXXVI.34; *jalajājīva*, XI.55), fowlers and hunters (*vyādha*, LXXXVI.10; *pāśika*, XV.22; CIII.63; *śākunin*, LXXXV.31; *śākunika*, XV.22; XVI.32; LXXXVI.34; *saukarika*, XV.22; XVI. 32), makers of bows (*dhanuṣkara*, V.73), conveyances (*yānakara*, X.17) and bridges (*setukara*, XV.18), mechanics (*vantravid*, XVI.17), farmers (*lāṅgalajīvin*[9], *karṣaka*,[10] *kṛṣikara*,[11] *kṛṣikṛt*,[12] *kṛṣirata*,[13] *kṛṣijīvin*,[14] *kṛṣīvala*[15]), catchers of elephants (*dvipagrāha*, X.9. Cf. LXXXVI.17), carters (*śākaṭika*, X.4; XV.2. Cf. VIII. 3), soldiers,[16] physicians (*vaidya*[17], *āyuṣyajña*,[18] *bhiṣaj*[19]), surgeons (*śalyahṛt*, V. 80), sailors (*nāvika*[20], *naujīvika*[21], *naukarṇa-*

1. *EI*, XV, pp. 131, 139, 143; XX, p. 62.
2. LXXXVI.12. Fleet renders '*kāyastha*' as 'a writer' (*IA*, V, pp. 57-8). Utpala gives '*devara*' as a synonym of '*kāyastha*'. *Divira* is mentioned In *CII*, III, No. 27, p. 122, l. 7. Also Cp. *IA*, VI, p. 10, where Bühler renders *kāyastha* or *divira* as 'a clerk, writer, or accountant.'
3. *EI*, XV, pp. 130, 133, 138-39, 143.
4. *Ibid*, p. 131, fn. 7.
5. V.29; XXIX.7; LXXXVI.32.
6. XV.5, 9, 11; XVI.17; XXXI.3; XXXII. 11; XXXV.30; LXXXVI. 43.
7. XXXIII.19.
8. IX.34; X.17; LXXXV.31.
9. IV.9.
10. V.29, 34; XV.2; XVI.8, 12.
11. XVI.5.
12. XXXIV.12.
13. XXXIII.21.
14. XXXI.4.
15. VIII.52; LXXXVI.23; LXXXVIII.4; CIII.63.
16. V.35. 41; XVI.12; XVII.17, 20, 24; XXXII.11; L. 21; LXXXVI. 11, 37.
17. V.41; X.3; XV.26; XXXIII.11; CIII.61.
18. XVI.27.
19. V.80; VII.6; IX.32, 43; X.9, 16, 17; XV.7, 17;, CIII.61, 62.
20. IV.8; IX.31.
21. VII.6.

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dhāra,[1] *potaplava*[2]), proclaimers (*ghauṣika*[3]), bell-ringers (*ghāṇṭika*, X.6, 12), sellers of water (*vārijīvaka*, XV.18; *vāryupajīvin*, V.42; *salilopajīvin*, XV.6)[4], diviners (*ikṣaṇika*[5]), mid-wives (*dhātrī*, LXXVII.9), executioners (*vadhika*, XVI.12; *vadharata*, *bandharata*, XV.4; *bāndhana*, XVI.32) and labourers (*karmin*, LII.109; LXXXV.44).

III. *Slavery and Labour*

Labour and capital are the two most important factors in the production of wealth. In ancient India three kinds of labour—slave, hired and forced—were current and are referred to by our author. The institution of slavery existed as an essential element in the social and economic life of all the ancient nations, India being no exception. Varāhamihira refers to both male and female slaves[6] and speaks of the possibility of a girl born under the influence of a certain combination of stars and planets being enslaved (*BJ*, XXIV.3). Mention is also made of the *garbhadāsa* (*BJ*, XXIII.14) who corresponds with the *udaradāsa* of Kauṭilya, Manu and Nārada.[7] *Garbhadāsa* is 'one who is born to a *dāsī* from a slave.' There is an allusion to the prosperity of slaves (*dāsa-parivṛddhi*, IX.21), indicating that they could own property.[8]

Hired labour also substantially contributed to the production of national wealth.[9] Apart from references to the people earning their livelihood by servile work or craft (*antyavṛtti*, *BJ*, XII.15; *antyaśilpa*, *BJ*, XVIII.11) and low services (*nīcakṛt*, *BJ*, XVIII. 3), we find mention of persons working for others.[10] Amongst the hired servants (*bhṛtaka*[11], *bhṛtya*,[12] *preṣya*[13]) attention may be

1. XV.25.
2. X.10.
3. X.39. But cf. Utpala—*athavā ghoṣe gahvare ye nivasanti te ghausikāḥ*.
4. Cf. XCIV.44, for reference to female water-bearers.
5. LXXVII.11; LXXXV.32.
6. IX.21; LXXVII.9; LXXXVI.15, 39.
7. *Arthaśāstra*, III,13; *Manu*, VIII.415; *Nārada*, V. 26.
8. Cf. *Arthaśāstra*, Dāsakalpa Section.
9. Cf. *Arthāptir...bhṛtakajanāt*, *BJ*, X.1.
10. LXVII. 26, 36; *BJ*, XVIII. 1.
11. *BJ*,X.1.
12. V. 69; LXVIII.36; C.6; *BJ*, XVI. 6; XVIII. 12.
13. XLV. 13; L. 25; LXVII. 26; *BJ*, XIX. 1.

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drawn to cowherds and shepherds (*gopa*,[1] *gopālaka*[2], *paśupa*,[3] *paśupālaka*[4]), grooms (*turagopacāraka*, X.3; *hayapa*, IX. 35), elephant-drivers (*mahāmātra*[5]), charioteers (*sūta*, X.10; LXXXVI.20; *rathika*, XV.11), messengers (*dūta*, X.10; XIX. 12; LXXXVI.8; *dūtī*, LXXVII.9; *cara*, X.10; *lekhahara*, XV.3), diggers of wells (*kūpakṛt*, IX.30), carriers of loads (*bhāravaha*, LXXXVI. 24; *bhārodvaha*, V. 42) and domestic servants (*sevaka*, V.34; *sevājana*, XV.30; *sevābhirata*, XV.5). The number of hired, particularly domestic, servants, appears to have been very large and there are references to persons having numerous servants.[6]

Though there is only one reference to free forced labour (*viṣṭi*) in Varāhamihira (*BJ*, XVIII.11), a large number of epigraphs recording grants of land with or without right to forced labour indicate its prevalence during our period. The famous Junagadh inscription. states that Rudradāman I got the Sudarśana lake repaired without exacting from his subjects taxes, forced labour and voluntary contributions (*apīḍayitvā kara-viṣṭi-praṇaya-kriyābhiḥ paura-jānapadaṁ janam*),[7] indicating that forced labour was usually exacted for works of public utility.

1. V. 36· XVI. 5; LXXXV. 30; LXXXVI. 45.
2. CIII.61.
3. XVI; 13.
4. XV. 23.
5. IX. 28. XV. 11, 19; XVI. 26.
6. LXVIII. 36; C. 6; *BJ*, XVI. 6.
7. *EI*, VIII p. 36.

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IV

TRADE

The goods manufactured by industrial workers must have been distributed far and wide through the channel of brisk inland and overseas trade, which contributed in no small proportion to the affluence and prosperity of the period. Besides the lure of wealth, the blessings of a large unified empire and long-enduring peace such as secure trade routes must have provided an additional incentive to traders, whose unceasing activities were in evidence long before the Gupta age. India's trade was not confined to her own limits; but, as in earlier period, she had commercial relations with many other nations of the world. We know from Fa-hian, Yuan Chwang and Cosmas indicopleustes that India had regular commercial ties with China, Ceylon and other countries in the east and with Persia, Ethiopia, Egypt and Byzentine Empire in the west.

INTERNAL TRADE. There were local markets in villages and towns where well-decorated shops[1] lined both sides of the street. Besides ordinary shop-keepers (*āpaṇastha*[2]) and traders (*vaṇij*[3], *vāṇijaka*[4], *paṇyavṛtti*[5], *paṇyāśrayin*[6]), rich businessmen (*arthapati*)[7] are also mentioned. The former probably satisfied local needs of the people, while the latter hoarded commercial commodities and carried them to distant places for the sake of gain.

MEANS OF TRANSPORTATION. Varāhamihira refers to conveyances as *vāhana* and *yāna*.[8] The bullock-cart (*śakaṭa*)[9]

1. XLII.26.
2. L.21.
3. V. 29; VII. 6; IX. 31; X. 6. 7; XV. 8, 11, 13, 25; XVI. 28; XVII. 26; XXXII. 10; XXXVIII. 2; L. 21; CIII. 63.
4. XXXI. 4.
5. X.17.
6. XVI.16.
7. V.21.
8. IX.43; LXVII.116.
9. VIII.3; XXXIV.5.

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was used both as a means of transporting goods[1] and as a conveyance.[2] Of its components, mention is made of the wheel (*cakra*[3]) the spoke (*ara*[4]), the rim (*nemi*[5]), axle (*akṣa*[6]), axle-pins (*aṇi*[7]) and the yoke (*yuga*[8]). We have also references to chariots[9], evidently used as conveyance. Indra's chariot is described as dazzling, 8-wheeled and as bedecked with variegated gems (XLII.6). The noise produced by a group of chariots was regarded as auspicious.[10] Chariots were usually drawn by horses; but Utpala (on XLII.34) refers to *goratha*, a chariot drawn by oxen. *Śibikā*[11] is the palanquin carried by men on their shoulders. It is still in use in some parts of India. There is a curious reference to a man riding another man (LXXXV.73). It seems to be the same as the *narayāna* mentioned in ΥΥ, VII.20. What it was like is difficult to ascertain. It probably refers to some manned conveyance. Of animals, horses and elephants were employed for covering long distances.[12] Horse-riders (*turagāroha*[13]) are also noticed. A special blanket called *kutha*[14] was spread on the elephant's back before riding it. Utpala calls it *vāraṇa-kambala*.[15] Bulls were used as beasts of burden and probably for riding also,[16] as may be inferred from references to bulls equal to horses in speed. The boat (*nau*[17]) and the ship (*pota*[18]), are the water-transports mentioned in our work. Sailors of boats[19] and ships[20] are also alluded to. As we have seen above, men were also employed for carrying wares. River-navigation was in a fairly advanced state

1. XLII.21.
2. LXXXV.74.
3. XLV.9.
4. XLII.22.
5. *Ibid.*
6. *Ibid*; XLV.9.
7. XLII.22.
8. XLV.9.
9. XVI.26; LXVIII.17; LXIX. 10.
10. XLII.34; LXVII. 95.
11. LXVII.45; LXXXV.73.
12. LXXXV.73.
13. XV.26.
14. CIII.23. Cf. *Amara* II.8.42. It is a varient reading given by Utpala, the other being—'*kathāṁ staraṇaṁ ca. Kecit kuthāstaraṇam=it-icchanti.*
15. *kutho vāraṇa-pambalas=tad=eva staraṇam.*
16. LX.9, 14, 15, 16.
17. IV.8.
18. X.10; XLVII.12.
19. IV.8; VII.6; IX.31; XVII.17.
20. X.10.

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and traders often frequented water routes (*jala-mārga*).[1] There are many reference s to bridges (*setu*).[2]

CARAVAN TRADE. The traders organised themselves into large bands (*sārtha*[3]) led by the *sārthavāha*[4] or *pradhāna*.[5] Sometimes there were more than one leader and in such cases one superior by birth, learning and age was regarded as the seniormost.[6] In spite of so much care, robbers sometimes got the upper hand, and Varāhamihira speaks of ruin and loss of wealth to caravan traders.[7] Kālidāsa also (*Mālavikāgnimitra*, V) gives pathetic account of the plight of a caravan that was going from Vidarbha to Vidiśā. A seal from Basarh (ancient Vaiśālī) describes one Doḍḍa as a *sārthavāha* and from some other seals we learn that the *sārthavāhas* along with the *śreṣṭhin* and merchants constituted a *nigama* (corporation[8]). The unique position enjoyed by the *sārthavāhas* in town life in those days is clear from the Damodarpur copper-plate inscriptions which inform us that they had their representatives on the Administrative Board (*adhikaraṇa*) of the Koṭivarṣa *viṣaya*.[9]

GUILDS. The artisans practising the same craft often organised themselves into a guild (*śreṇī*[10]) under their president called *śreṇīśreṣṭha*[11] or *śreṣṭhin*[12] At Basarh have been discovered, as noted above, some sealings of the corporation (*nigama*) of bankers, traders and merchants, sometimes associated with those of private individuals, who were apparently its members. This, according to Bloch, suggests that during those days something like a modern chamber of commerce existed in upper India at some big trading centre, perhaps at Pāṭaliputra, wherefrom members

1. XVI.16.
2. XV.18; XVI.16; XIX.12; XXVIII.5.
3. LXXXVI.39.
4. IV.13; LXXXVI.14.
5. LXXXV.11.
6. *Sārthe pradhānaṁ sāmye syāj=jāti-vidyāvayo=dhikam, ibid.*
7. LXXXVI.39.
8. *ASI, AR*, 1903-04, p. 110, Pl. XLI. 19, 23, 29, 32; XLII.39, 40, 47, 274.
9. *EI*, XV. pp. 130, 133, 138-39.
10. X.13; XXXIV.19.
11. VIII.10. Cf. Utpala—*Bahūnāṁ samāna-jātīyānāṁ saṅghaḥ śreṇī tataḥ śreṣṭhāḥ pradhānāḥ.*
12. XXIX.10; XXXIII.25.

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issued directions to their local agents.[1] Some epigraphic records of the Gupta as well as earlier period furnish specific references to artisans' guilds and add considerably to our knowledge about their functioning. Thus, there are references in earlier inscriptions to the guilds of *koṇācikas*[2] (?), bamboo-workers, braziers,[3] *kularikas* (perhaps potters), *deḍayatrikas* (?), oil-millers,[4] weavers,[5] and *samitakaras* (wheat-flour-makers ?).[6] Weavers' and oil-men's guilds are also named in the Mandasaur inscr. of the time of Kumāragupta and Bhandhuvarman[7] and Indore copper-plate inscr. of the time of Skandagupta[8] respectively. These guilds served some very useful purposes in the then Indian economy. People deposited with them sums of money, sometimes very large, as perpetual religious endowments out of the interest of which certain specific expenses were to be defrayed.[9] We have instances of guilds undertaking in their collective capacity certain pious acts. Thus, a silk-weavers' guild is said to have built a Sun-temple at Manda-

1. *ASI, AR*, 1903-04, pp. 104, 110. For a different view, vide Maity, *op. cit.* pp. 156-7.
2. Junnar Inscriptions, No. 24, *ASWI*, IV, p. 96.
3. *Ibid.*, No. 27.
4. Nasik Inscr. of Ābhīra Iśvarasena, *ibid.*, p. 104, ll. 10-12.
5. Nasik Inscr. No. 9, *ibid.*, p. 102.
6. *EI*, XXI, p. 59.
7. *CII*, III, pp. 81 ff.
8. *Ibid.*, p. 70.
9. Some instances are given below:—

(a) Junnar inscr. No. 27, *ASWI*, IV: unspecified amounts deposited with bamboo-workers' and braziers' guilds; (b) Nasik inscr. No. 9, *ibid.*, p. 102: Uṣavadāta deposited in all 3,000 *kārṣāpaṇas*, 2,000 with a weavers' guild and 1,000 with another as permanent endowments at a fixed rate of interest to defray certain expenses of Buddhist monks; (c) Nasik Inscr. No. 12, *ibid.*, p. 104, ll. 10-12: records various deposits with the guilds of *kulirakas*, *dedayatrikas*, oilmen and others; (d) A Mathura inscr. (2nd century A.D.), *EI*, XXI, p. 89: 550 *purāṇas* deposited with a flour-makers' guild for an alms-house. The name of another guild cannot be made out; (e) Indore CP. inscr., *CII*, III, p. 70: Brāhmaṇa Devaviṣṇu deposited a perpetual endowment with an oil-men's guild at Indrapura for providing 2 *palas* of oil daily for maintaining a lamp in a Sun-temple; (f) Gadhwa inscr., *CII*, III, p. 38; Candragupta II permanently endowed 20 *dināras*, evidently with a guild, whose name cannot be made out, for maintaining two alms-houses; (g) Kumāragupta deposited two sums of 13 and 12 *dināras*, apparently with a guild or two, for providing two alms-houses, *CII*, III, p. 40, ll. 6-7, p. 41, l. 7.

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saur in A. D. 437-38 and repaired the same in 473-74.[1] The guilds also enjoyed perfect freedom of immigration. As an instance may be cited the case of a silk-weavers' guild which migrated from Lāṭa to Daśapura (mod. Mandasaur).[2] The high degree of prestige enjoyed by the guilds is obvious from the inclusion of the *nagaraśreṣṭhin*[3] in the *adhikaraṇas* (Administrative Boards) of Koṭivarṣa *viṣaya*[4] and of Puṇḍravardhana.[5]

REGIONAL PRODUCTS. Ordinary regional economic products were, as usual, consumed locally, whereas their surplus was exported to those areas where they were not produced. The long-distance trade was instrumental in bringing about different parts of the country closer, for they had to depend, to a certain extent, on the economic products of one another. Spices like small cardamoms, ṇverrhoas and cloves which found favour throughout the country were grown in the coastal region of the south-west and exported elsewhere from there.[6] Areca-nuts, *aguru*, and *pārijāta* were similarly obtained from the north-east.[7] Pepper (*marica*)[8] is not assigned to any region, but it was undoubtedly a famous product of the south and formed an important article of export to other countries.[9] Sandal wood, which was so commonly used in those days, grew on the Malaya mountain (southern parts of the Western Ghats below the Kāverī) and was consequently called *malaya*.[10], Yuan Chwang[11] also regards it as a product of Malaya, and according to Cosmas (XII), it was exported to western ports, Persia and Ethiopian coast through Ceylon. An incense called *silhaka* was obtained from the Turuṣka country (probably Bactria) and was, therefore, named *turuṣka*.[12] According to

1. *CII*, III, p. 80.
2. *Ibid.*
3. R. G. Basak (*EI*, XV), D. C. Sircar (*SI*, p. 284, fn. 6) and Saletore (*Life in the Gupta Age*, p. 366) take it to mean guild president or chief guild president, while according to K. N. Dikshit, it denotes Mayor, cf. *EI*, XX, p. 61.
4. Damodarpur CP. inscr., *EI*, XV, pp. 130, 133, 138-39.
5. Paharpur inscr., *EI*, XX, p. 61.
6. XXVII.9. But this chapter is spurious.
7. XXVII.9. This stanza is not found in S. Dvivedi's ed.
8. L. 15; LXXVI.32.
9. Cosmas, XII.
10. LXXVI.7, 8, 14, 24.
11. II, 228.
12. LXXVI.7, 8, 9, 23, 26, 30.

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the *Amarakoṣa* (II.6.128), *silhaka* was derived from the Turuṣka and Yavana countries. The incense called *cola*[1], it may be suggested, was probably so called because it was obtained from the Tamil ouuntry. According to a *Nighaṇṭu* stanza cited by Utpala, saffron was derived from Kashmir.[2] Amara (II.6.123-4) mentions Kashmir and Vāhlīka as sources of saffron. Kālidāsa[3] describes saffron grown on the banks of the Indus. Of the animal products, yak's tail was secured from the Himalayan region.[4] As to ivory, Varāhamihira merely mentions elephants of the moist and mountainous regions without any specification.[5] Kālidāsa associates them with Kaliṅga, Kāmarūpa and Aṅga.[6] Rock-salt was derived from the rock-salt deposits of the Panjab Salt Range and Kalat District now in West Pakiastan and was called *saindhava*. Diamonds, pearls and other precious stones were mined in several localities as will be shown in the following section. The wide-spread use of all these articles referred to in the preceding chapters testifies to the existence of an extensive trade in these and other commodities.

PRICES. The system of state control of prices which appears to have been enforced in an earlier period[7] was no more in vogue. The fluctuation of prices, as usual, must have been determined by economic factors, such as rules of demand and supply. The tendency of hoarding commercial wares and earning surplus profits by selling them at a suitable time appears to have been very much in evidence. Thus, merchants often hoarded corn, liquids, honey, perfumes, oil, *ghee*, jaggery, metals, jewels, pearls, skins, weapons, armours, chowries, donkeys, camels, horses, fabrics, blankets, flowers, fruits, bulbs, roots, saffron, conches, corals, glass, etc., for a period ranging from one month to two years after which they sold them at fabulously high prices, sometimes amounting to twice or thrice the prime cost, thus deriving large profits (XLI. 3-12). But sometimes, under adverse circumstances, prices went down and merchants had to suffer heavy losses (XXXIX.11; XLI.5, 6). This well-contemplated but, apparently sudden, rise

1. LXXVI.14.
2. S. Dvivedi's ed., Vol. II, p. 941.
3. *Raghuvaṁśa*, IV.67. Yuan Chwang adds Udyāna and Darel (I, 225, 239, 261).
4. LXXI.1.
5. LXXVIII.20; XCIII.1.
6. *Raghu*, IV.40, 83; VI.27.
7. *Arthaśāstra*, Bk. II, Chs. 16, 21.

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and fall in prices is sought to be explained on astrological grounds. Thus, Varāhamihira directs the astrologer to forcast every month details regarding the fluctuation of prices by observing excessive rainfall, meteor, rod, haloes, eclipse, mock-sun and similar other portents on the *amāvāsyā* and *pūrṇimā* as also at the time of the sun's entry into a new sign.[1] It is also stated that an eclipse in the mid-day causes the sale of corn at a fair price (V.30); an eclipse in the Markaṭa *rāśi*, abnormal rise in the prices of grains; Mars passing through the south of Rohiṇī, fall in prices (VI.10); the rise of Mercury after its conjunction with the sun, an unusual rise and fall in the prices of corn (VII.1); the transit of Mercury through any of the six asterisms beginning with Hasta, rise in prices of oils and other liquid objects (VII.4). It is further observed that in the Pauṣa year of the twelve-year cycle, the corn fetches two or three times its normal price.[2] Similarly, prices must be expected to go up in the Māgha and Caitra years (VIII.6, 8). The upward trend in prices is also said to be caused by Venus overpowering Saturn (XVII.25). The commodities of trade were believed to be presided over by zodiacal signs (Ch. XL). It was believed that profit is ensured if the sun and the moon in various signs are conjoined with and aspected by very friendly planets. It is further stated that the moon conjoined with the sun or in full disc and in conjunction with or aspected by benefics foreshadows increase in the prices of the articles belonging to that sign which is at the time occupied by the moon. Similarly, the sun conjoined with or aspected by malefics brings down the prices of articles belonging to the particular sign (XLI.13-14).[3]

OVERSEAS TRADE. There is evidence for the existence of India's trade relations with other countries in the Gupta age. As we have seen above, our author refers to water-routes, ships and shipmen (*potaplava*, X.10) and seafaring vessels (*arṇavayāna*, ११,

1. अतिवृष्ट्युल्कादण्डान् परिवेषग्रहणपरिधिपूर्वांश्च ।
दृष्ट्वामावास्यायामुत्पातान् पौर्णमास्यां च ॥
ब्रूयादर्घविशेषान् प्रतिमासं राशिषु क्रमात् सूर्ये XLI.1-2.

2. *Dvi-triguṇo dhānyārghaḥ*, VIII.5. It should signify two or three times rise in prices and not fall as Utpala would have us understand:—*Dhānyasyārgho dviguṇas=triguṇo vā bhavati, dhānyasya yan=mūlyam=āsīt ten-aiva dviguṇaṁ triguṇaṁ vā labhyate.*

3. Vide also XXXIX.11-13; XL.9-13.

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IV.52). He speaks of the sea-shore overcrowded with ships that have arrived securely laden with precious objects (XLVII.12). Varāhamihira refers to South India as the home of expert meriners (*vāricara*, XIV.14), a position it still retains. India had very close commercial contacts with Ceylon wherefrom she imported pearls (LXXX.2-3). As observed by Cosmas, by virtue of its central position, the island of Ceylon became a great resort of ships from all parts of India, and from Persia and Ethiopia, and in like manner it sent out many of its own to foreign ports including Male (Malabar Coast), Kalliana (Kalyan) and Sindh. Persian pearls (LXXX.2, 5), which appear to have been very much liked in India in those days, must have been imported through the intermediary of Ceylon. The accounts of Fa-hian, Yuan Chwang and I-tsing testify to the briskness of overland and sea-borne trade between India and China and other countries of Asia. The continuance of Indian trade with Rome is attested by the discovery in S. India of a number of Roman coins[1] and Indian embassies to Justinian in A.D. 530 and 552. The most important trade ports in India in the 6th century, according to Cosmas, were Sindhu, Orrhotha (Gujarat), Kalliana (Kalyan), Sibor (Chaul), and five ports in Male (Malabar) exporting pepper : Parti, Mangarouth (Mangalore), Salopatana, Nalopatana and Poudopatana, the last three probably situated between Mangalore and Calicut.[2]

1. *JRAS*, 1904, pp. 307 ff.
2. K. A. N. Sastri, *Foreign Notices of South india*, p. 89.

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V

JEWEL INDUSTRY

In ancient and mediaeval periods of her history, India formed one of the greatest trading centres for precious stones. Sporadic allusions to gemstones are scattered through the vast mass of literary works, both indigenous and foreign. In course of time, however, entire knowledge pertaining to precious stones was systematised and given the status of a *śāstra* called *ratnaparīkṣā*. It is mentioned by Kauṭilya (*Arthaśāstra*, BK. II. Ch. 11) and Vātsyāyana (I.3.16)[1], the latter including it in his catalogue of sixty-four subsidiary arts. It is not possible to decide when this subject assumed the shape of an independent science. In Varāhamihira and Buddhabhaṭṭa (*c.* 6th cent. A. D.), it appears in a considerably developed state. The former refers to *pūrvācāryas* (LXXXI.11) in general and the latter (*Ratnaparīkṣā*, 1.1)[2] admits that his work is an abridgment of an older *Ratnaśāstra*. In Kauṭilya, on the other hand, it appears to be in a nebulous condition. We may, therefore, assume that the study of this subject was scientifically cultivated in the early centuries of the Christian era.

According to Yaśodhara, *ratnaparīkṣā* treats of the qualities, defects, prices, etc., of jewels (*Ratnaṁ vajra-maṇi-mukt-ādi, teṣāṁ guṇa-doṣa-mūly-ādibhiḥ parīkṣā vyavahār-āṅgam*, Jayamaṅgalā on *Kāmasūtra*, I.3.16). After examining some works, Louis Finot concludes that the *ratnaśāstra* works mainly deal with the following topics: origin, mines, colour, species, qualities and defects, effects, prices and counterfeits.[3] The Rantaparīkṣā section of our work is one of the two oldest treatises

1. The view of Louis Finot (*Les Lapidaires Indiens*, p. ii) that the *Kāmasūtra* is the earliest work to refer to *ratnaparīkṣā* is to be modified in view of the discovery of Kauṭilya's *Arthaśāstra* subsequent to the publication of Finot's work.

2. References pertain to Finot's work. Many useful texts are incorporated in it.

3. Finot, *op. cit.* p. xx.

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to treat of these topics, the other being Buddhabhaṭṭa's *Ratnaparīkṣā*.[1] In subsequent times, Varāhamihira was recognised as an authority on *ratnaśāstra*. Caṇḍeśvara (14th century) refers to Varāha as one of the sources he drew upon in his *Ratnadīpikā* (I.3).[2]

The term *ratna* in Sanskrit has a double sense—precious objects in general, and precious stones in particular. Varāhamihira, therefore, specifies it in the latter sense. "The word *ratna*", states he, "is applicable to elephants, horses, women, etc., on account of the excellence of their intrinsic qualities. Here (for the purpose of the present section), however, it is used for gemstones (*upala-ratna*)[3] such as a diamond" (LXXIX.2). Some beliefs about the origin of gems are recorded. Some held that gems originated from the bones of Daitya Bala; according to others, from those of Dadhīci; and according to still others, the great variety of jewels is due to the intrinsic qualities of the earth (LXXIX.3).[4]

The classification of gems into *mahāratnas* and *uparatnas*[5] is ignored by Varāhamihira, who names the following twenty-two stones (LXXIX.4-5) :—(1) *vajra*[6] (diamond), (2) *indranīla*[7] (a variety of sapphire), (3) *marakata* (emerald), (4) *karketana* (chrysoberyl), (5) *padmarāga* (ruby), (6) *rudhirākhya*[8] (carnelian), (7) *vaidūrya* (cat's eye), (8) *pulaka* (garnet), (9) *vimalaka*, (10) *rājamaṇi*, (11) *sphaṭika* (rock-crystal), (12) *śaśikānta* (moonstone), (13) *saugandhika* (a kind of

1. Buddhabhaṭṭa's work also belongs to the close of the 5th or the middle of the 6th century A. D. From a painstaking analysis of close similarities and dissimilarities between the two works in certain respects, e. g., catalogue of gemstones, prices of diamonds, pearls, etc., Finot has shown the improbability of these works borrowing from one another. Certain similarities between them may be explained, according to him, on the hypothesis that both theseworks drew upon some common tradition or work, probably the *Ratnaśāstra* named by Buddhabhaṭṭa. Vide Finot, *op. cit.*, pp. vi-ix.

2. Dr. V. W. Karambelkar, who critically edited this work, believes that though Caṇḍeśvara abundantly draws upon the *BS* etc., he does not mention them expressly. Vide his preface to the *Ratnadīpikā*, p. ii. But Varāha of the said verse is certainly Varāhamihira.

3. Gems are referred to as *upala* in XII.5; LXXIX.3.
4. Cf. Buddhabhaṭṭa, I.2 ff.
5. e. g., Caṇḍeśvara's *Ratnadīpikā*, I.5-7.
6. Also mentioned in XVI.27; XXIX.8; XL.8.
7. Cf. LIII.110.
8. It is called *Rudhirākṣa* in *YY*, VI.9.

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padmarāga), (14) *gomedaka* (hyacinth), (15) *śaṅkha* (probably mother of pearls), (16) *mahānīla* (a sort of sapphire), (17) *puṣparāga* (topaz), (18) *brahmamaṇi*, (19) *jyotīrasa*, (20) *sasyaka*, (21) *muktā* (pearl), (22) *pravāla* (coral). Of these only four are described in detail, viz., diamond, pearl, ruby and emerald, and Finot's view that Varāhamihira's account has come down to us in an incomplete form[1] is quite probable.

I. *The Diamond*

The diamond was considered to be the foremost among gems[2] and practically all the *ratnaśāstra* texts begin with it. The bank of the Veṇā (Wainganga near Nagpur), Kosala (probably South Kosala), Surāṣṭra (Kathiawad), Śūrpāraka (Sopara), Himavat, Mataṅga, Kaliṅga (the region between the Godāvarī and the Mahānadī) and Puṇḍra (N. Bengal) are named as findspots of diamonds.[3] In some of these regions, no diamonds are found at present. It is likely that some ancient diamond-workings have been abandoned leaving no trace whatsoever, and, secondly, as suggested by Finot,[4] some of the places referred to in the old texts may have been ports of export trade in diamonds. Thus no tangible traces of diamond-mines are to be found in Surāṣṭra and Śūrpāraka, which appear to have been emporia of diamond trade. The Veṇā seems to refer to Wairagadh situated on its bank where diamonds are found in lateritic grits.[5] Wairagadh appears to have been famous for its diamonds and was consequently known as Vajrākara or Vajragṛha.[6]

1. Finot, *op. cit.* p. vii.

2. Cf. *BS*, LXXIX.2:—*Iha t-ūpala-ratnānām=adhikāro vajra-pūrvāṇām*; *Śukranīti*, IV.2.47:—*Ratna-śreṣṭhataraṁ vajram.*

3. *BS*, LXXIX.6-7. Cf. Buddhabhaṭṭa, I.18, who gives the same findspots.

4. Finot, *op. cit.* p. xxv.

5. *Ib.*, p. xxvi; J. C. Brown & A. K. Dey, *India's Mineral Wealth*, p. 580; V. G. Desai, *The Ancient Chemistry of India* (Marathi), p. 462.

6. It is referred to as Vayirāgara in Tiruvoṟṟiur Adhipurīśvara temple inscr. of Kulottuṅga Coḷa I and as Vajirāgara in the Pāṇḍava-Perumal Temple inscr. of his 5th regnal year. From this Kielhorn inferred that the original name of Wairagadh was Vajrākara (*EI*, VII, App. 124-5, Nos. 756-61). The fact that it is called Vajiraghara in the Hathigumpha inscr. of Khāravela (*EI*, XX, p. 79, l. 7) has led K.P. Jayaswal and R. D. Banerji to opine that Vajragṛha was the original name (*ibid.*, p. 78).

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Kauṭilya evidently has Wairagadh in mind when he refers to Sabhārāṣṭra, which, according to a commentary, is the same as Vidarbha, as a source of diamonds.[1] South Kosala must have comprised diamond-mines of Vindhya Pradesh where diamond-working is still practised. The Vindhya Pradesh diamond-fields "are scattered over an area some 60 miles long by 10 miles wide, across a number of former small states of the Bundelkhand Agency, the most extensive workings being in Panna." In 1906 "there were thirty-six 'principal localities that have yielded diamonds', in six separate states of Bundelkhand."[2] Except a few sporadic finds near Simla, no diamond-mines are reported from Himavat.[3] Mataṅga is the tract between the rivers Kṛishṇā and Godāvarī, i.e., Telingana, and probably refers to the well-known Golconda diamond-mines. As for Kaliṅga,[4] diamond finds are recorded from the Mahānadī alluvium in the Sambhalpur district of Orissa, in the sands of the Koel river, an affluent of the Son, in the Palamau district, and at Hirakund.[5] No diamond-working is known in north Bengal.[6]

Varāhamihira refers to streams, mines and sporadic places as the three sources of diamonds (*Srotaḥ khaniḥ prakīrṇakam*[7] *=ity= ākara-sambhavas= trividhaḥ*, LXXIX.10). The

1. *Arthaśāstra* (Engl. Tr. by R. Shamasastry), p. 78 fn. 8.

2. Brown & Dey, *op. cit.*, pp. 580-81 (It gives a list of diamond-bearing localities in Vindhya Pradesh) ; Desai, *op. cit.*, pp. 461-2. Finot (*op. cit.*, p. xxvi), however, thinks that Kosala refers to region round Ayodhyā where Panna diamonds were brought and sold. According to a commentary, Kauṭilya's Madhyamarāṣṭra, a source of diamonds, refers to the Kosala country. Vide Shamasastry, *op. cit.*, p. 78, fn. 9.

3. The *Arthaśāstra* mentions the mountain Maṇimantaka as a source of diamonds and the commentator adds the mountains Sahya, Vindhya and Vedotkaṭa (*ib.*, p. 78, fn. 12).

4. Kauṭilya refers to the diamond-mines of Indravāṇaka which, according to a commentary, is identical with Kaliṅga (*ib.*, fn. 11).

5. Brown & Dey, *op. cit.* p. 580.

6. According to a commentary on the *Arthaśāstra* quoted by Shamasastry (p. 78, fn. 12), "Magadha, Kaliṅga, Śūrpaka, Jaladayasa, Pauṇḍraka, Barbara, Tripura, the mountains such as Sahya and Vindhya, Benaras, the mountain of Vedotkaṭa, the country of Kosala and Vidarbha are the places where diamond-mines are situated."

7. Cf. Utpala—*prakīrṇakaṁ yasyāṁ bhūmau maṇayo bhavanti samudre yathā.* For ocean or water as a source of jewels. Cf. V.42; VII.6; X.7; XII.16 XIII.10; XL.8; LXXXVI.10.

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same statement is contained in the *Arthaśāstra* (*Khanis=srotaḥ prakīrṇakaṁ ca yonayaḥ*, II.11). Buddhabhaṭṭa adds the sea, forests and mountains as the sources of precious stones in general (*Payonidhau sariti ca parvate kānane=pi ca, Tat tad=ākaratāṁ yātaṁ sthānam=adhyeyagauravāt, Ratna-parīkṣā*, I.10).

Each of the above regions is said to yield diamonds of a particular description. Thus a diamond from the bank of the Wainganga, Kosala, Surāṣṭra, Sopara, Himavat, Mataṅga, Kaliṅga and Puṇḍra respectively is described as faultless, coloured like a *śirīṣa* flower (i.e. slightly yellow), copper-coloured (red), black, slightly red, coloured like a *valla* flower (grey), yellow and blue (LXXIX.6-7).

A diamond with a certain colour and shape was believed to be presided over by a particular deity. Thus an hexangular white diamond is assigned to Indra; one dark and shaped like a serpent's mouth to Yama; one with the colour of a plantain staff, i.e., bluish yellow, and of any shape to Viṣṇu; that coloured like the *karṇikāra* flower and shaped like the female genital organ to Varuṇa; that shaped like the *śṛṅgāṭaka* fruit, i.e., triangular, and coloured like tiger's eye, i.e., bluish red, to Agni; and that having the form of a barley corn, i.e., stouter in the middle, and of the hue of the red *aśoka* flower to Vāyu (LXXIX. 8-10 and comm. Cf. Buddhabhaṭṭa, I.22).

It was customary with the *ratnaśāstrakāras* to assign jewels of different colours to different castes. Our author accordingly ascribes a red and yellow diamond to the Kṣatriyas, white one to the Brāhmaṇas, *śirīṣa*-coloured to the Vaiśyas and that coloured like a sword, i.e., black, to the Śūdras (LXXIX.11). This caste-wise division is followed even by the Buddhist writer Buddhabhaṭṭa (I.23-6). It is difficult to determine how far these rules were followed in practice; they appear more imaginary than real.

According to the system employed in weighing and pricing the diamond, eight white mustard seeds constituted one *taṇḍula* (a grain of rice). The maximum weight mentioned in this connection is 20 *taṇḍulas*, each of the following units being two degrees lower than the preceding one. Although the price of each unit is given (LXXIX.12-13), the coin denomination intended is left unspecified; but Utpala

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gives the tariff in terms of *kārṣāpaṇas*. Thus the price of a diamond weighing

20	*Taṇḍulas*	is fixed	at 200,000	*Kārṣāpaṇas*
18	,,	,,	150,000	,,
16	,,	,,	$133,333\frac{1}{3}$	,,
14	,,	,,	100,000	,,
12	,,	,,	66,667	,,
10	,,	,,	40,000	,,
8	,,	,,	12,500	,,
6	,,	,,	8,000	,,
4	,,	,,	2,000	,,
2	,,	,,	200	,,

An average mustard seed weighs .001 grains; therefore a *taṇḍula*, which is equal to 8 mustard grains=.08 grains. The maximum weight of a diamond mentioned in this connection is 20 *taṇḍulas*, i.e., 16 grains or 4 carates which is indeed very low. Stones of a much higher weight are found even at present when diamond industry is steadily declining. It is impossible to believe that in that heyday of this industry diamonds weighing more than four carates were unknown. The reason behind selecting this weight appears to lie in the fact that twenty *taṇḍulas* constituted the unit *dharaṇa* especially employed in weighing diamonds (*Viṁśati-taṇḍulaṁ vajradharaṇam*, *Arthaśāstra*, II.19).[1]

The weight was not the only criterion in determining the price. A diamond fetched more or less price according as it was good or defective. Varāhamihira lays down a general principle according to which the price of a diamond with any of the defects to be noticed shortly decreases by 1/8th (LXXIX.16). Another price-list is to be found in Buddhabhaṭṭa's *Ratnaparīkṣā*, but there the price is given in *rūpakas* and only the highest figure of the two lists, i.e., 2,00,000, agrees with one another, the rest differing widely from each other.[2] In all likelihood, the leading figure repre-

1. Finot has also discussed this problem, but failed to arrive at any satisfactory conclusion.

2. For a comparative table, vide Finot, *op. cit.*, p. xxx; for Buddha-Bhaṭṭa's text, *ibid.*, p. 11, No. 39.

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sents the standard price while the succeeding ones are local variations.

Good and bad qualities of diamonds are also briefly enumerated.[1] Thus an ideal diamond, it is stated, should be so hard that it cannot be pierced by any other substance,[2] light in weight as compared to its volume and capable of floating on water,[3] brilliant, glossy and resembling lightning, fire and rainbow. The diamond that has scratches like crow's legs, flies or hair, is mixed with clay or gravel, broken, double-faceted, burnt, of deformed colour, devoid of lustre, perforated, has bubbles or spots, is truncated on points, flat and unduly elongated like *vāsī* fruit (?) is said to be defective.

A good or bad diamond was believed to have corresponding effects on the person of the wearer. Thus a defective diamond, says Varāhamihira, causes decrease of wearer's kith and kin, wealth and life, while a perfect one brings fear from thunderbolt, enemy and poison to an end and increases prosperity (LXXIX.18).[3a]

Diamond was supposed to cause abortion in a pregnant woman.[4] While some held that a diamond should not be worn by a woman longing for sons, according to others, she could wear a diamond that is shaped like a *śṛṅgāṭaka* fruit, i.e., triangular, trigoned or like a coriander seed or buttocks (LXXIX.17).[5]

1. सर्वद्रव्याभेद्यं लघ्वभ्भसि तरति रश्मिवत् स्निग्धम् ।
तडिदनलशक्रचापोपमं च वज्रं हितायोक्तम् ॥
काकपदमक्षिकाकेशधातुयुक्तानि शर्करैर्विद्धम् ।
द्विगुणाश्रि दग्धकलुषत्रस्तविशीर्णानि न शुभानि ॥
यानि च बुद्बुददलिताग्रचिपिटवासीफलप्रदीर्घाणि ।
सर्वेषां चैतेषां मूल्याद् भागोऽष्टमो हानिः ॥ LXXIX.14-6.

2. Kālidāsa (*Raghuvaṁśa*, I.4) refers to "a gem pierced by *vajra*"; *Maṇau vajra-samutkīrṇe*. Mallinātha explains it as a special kind of needle meant for piercing precious stones (*vajreṇa maṇi-vedhaka-sūcī-viśeṣeṇa*) and cites Keśava in his support. At present the diamond is noted as a material of superlative hardness and the superfine finish obtained from the use of diamond lathe-tools is unsurpassed, cf. Brown & Dey, *op. cit.*, p. 585.

3. Utpala is mistaken in taking "*tarati*" to mean "sinks":—*ambhasi jale tarati nimajjat-īti*.

3a. Cf. *Rāja-taraṅgiṇī*, IV. 331.

4. Cf. *Śukranītisāra*, IV.2.53; Buddhabhaṭṭa, I.45; Caṇḍeśvara, I.42.

5. Utpala wrongly takes *śroṇī* to mean a woman's lower lip—*śroṇī-nibhaṁ stry=adhara-rāga-sadṛśam*.

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II. *The Pearl*

The pearl, variously referred to as *muktā* (XII.1;LXXX. 13, 25, 34), *muktāphala* (LXXX. 1, 30)and *mauktika* (XXIV. 16; XXIX.6; LIII.110), is said to have eight sources : (1) the elephant, (2) serpent, (3) oyster, (4) conch, (5) clouds, (6) bamboo, (7) fish and (8) hog. Buddhabhaṭṭa (II.52-71) also knows all these sources; the *Śukranītisāra* (IV.2.59) omits the elephant; Kauṭilya (*śuktiḥ śaṅkhaḥ prakīrṇakaṁ ca yonayaḥ*, II. 11) names only pearl-oysters, conches and sporadic sources. Of these, the pearls derived from the oyster were regarded as the best and were much in use.[1]

ĀKARA (provenances). The following eight regions are named as the find-spots of pearls: (1) Siṁhala, (2) Paraloka, (3) Surāṣṭra, (4) Tāmraparṇī river, (5) Pāraśava, (6) Kaubera, (7) Pāṇḍyavāṭaka and (8) Himavat (LXXX.2). Buddhabhaṭṭa[2] replaces Pāṇḍyavāṭaka by Puṇḍra and omits Pāraśava from his list. Of these, Kauṭilya names only three, the Tāmraparṇī, Pāṇḍyavāṭa and the Himālayas, and adds Pāśikya (pearl produced in the river Pāśa), Kauleya (that derived from the river Kūlā near the village of Mayūra in the island of Siṁhala), Caurṇeya (that obtained from a river near the village Maruchi in the Kerala country), Māhendra (one secured from the Mahendra mountain), Kārdamika (that from the river Kārdama in Persia), Srautasīya (that which is produced in the river Srotasī), Hrādīya (one produced in a pool of water known as Śrīghaṇṭa in a corner of the Barbara sea).[3] Siṁhala (Ceylon) has been well-known from very early times for its prosperous pearl industry. Megasthenes[4] (4th century B. C.) and the author of the *Periplus* (61) (1st century A.D.) mention large pearls of Ceylon (the former calls it Taprobane and the latter

1. द्विपभुजगशुक्तिशंखाभ्रवेणुतिमिसूकरप्रसूतानि ।
मुक्ताफलानि तेषां बहुसाधु च शुक्तिजं भवति ॥ LXXX.1

2. Finot, *op. cit.*, text, No. 75.

3. *Arthaśāstra*, II.XI, p. 75; Engl. Tr. by Shamasastry, pp. 75-6 & notes.

4. J. W. McCrindle, *Ancient India as described by Megasthenes and Arrian*, pp. 62-3.

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Palaesimundu). The Chinese pilgrim Fa-hien, who visited India and Ceylon in A.D. 399-414, tells us that the small islands round Ceylon, nearly a hundred in number, produced chiefly pearls and other precious stones and in one of the islands, about ten *li* square, fine pearls called *maṇi* were found. We are further informed that the king of the country sent his men to guard it and if pearls were obtained, he took 3 out of 10. He also refers to 'many precious stones and priceless pearls' hoarded in the treasury of the Buddhist priests.[1] Ceylonese pearls are said to be of various shapes, glossy, swan-coloured and large (*Bahusaṁsthānāḥ snigdhāḥ haṁs-ābhāḥ Siṁhal-ākarāḥ sthūlāḥ*, LXXX.3). Paraloka is probably identical with the place called Purali in Kerala which is known for its pearl-fishery; Paralia of Ptolemy and of the *Periplus* appears to be a corruption of Paraloka.[2] The pearls from Paraloka are described as dark, white or yellow, mixed with gravel and uneven (*kṛṣṇāḥ śvetāḥ pītāḥ saśarkarāḥ Pāralaukikāḥ viṣamāḥ*, LXXX.4). Surāṣṭra refers to the Gulf of Cambay pearls wherefrom were neither too large nor too small and had the shade of butter (*na sthūlā nāty=alpā navanīta-nibhāś=ca Saurāṣṭrāḥ*, LXXX.4). The river Tāmraparṇī, pearls where of are said to have been slightly copper-coloured or white and bright (*Iṣat tāmrāḥ śvetāḥ tamo-viyuktāś=ca Tāmrākhyāḥ*, LXXX.3), is the same as the Tambaravari or the united course of the Tambaravari and the Chittar in the Tinnevelly region which is even now celebrated for its pearl-fishery. The Tāmraparṇī ran through the Pāṇḍya country (Pāṇḍyavāṭa of our author) which formed the southernmost part of the Indian Peninsula comprising modern Tinnevelly and Madura Districts and yielded triangular and minute pearls resembling the *nimba* fruit or coriander seed (*Nimba-phala-tripuṭa-dhānyaka-cūrṇāḥ syuḥ Pāṇḍyavāṭa-bhavāḥ*, LXXX.6). Pearl-fishery is still practised near the harbour of Tuticorn, below Tanjore. The *Periplus* (59) refers to the pearl-fisheries worked by condemned prisoners at the port of Colchi (modern Korkai) belonging to the Pāṇḍya kingdom. It

1. Giles, *Travels of Fa-hien*, pp. 66, 69. Alberuni (I, 201) informs us that the pearl-banks of Sarandib (Ceylon) had been abandoned in his time.

2. Marco Polo. (K. A. N. Sastri, *Foreign Notices of South India*, pp. 162-3) also describes the pearl-fisheries of Malabar.

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further tells us that at Argaru (Uraiyur), an important town in the Pāṇḍya country, were bought the pearls gathered on the coast thereabouts. Kālidāsa also knows of the extensive pearl-fisheries practised at the mouth of the Tāmraparṇī and represents the Pāṇḍya king as having presented Raghu with the choicest pearls obtained therefrom (*Raghuvaṁśa*, IV.50). Under the name of Mo-lo-ku-t'a this country is mentioned as 'a depot for sea-pearls' by Yuan Chwang.[1] Pāraśava refers to the Persian Gulf. The Pāraśava pearls are said to be very brilliant, white, very heavy and possessed of highly commendable features (*Jyotiṣmatyaḥ śubhrā guravo=timahāguṇāś=ca Pāraśavāḥ*, LXXX.5). The pearls from the Himalayan region were noted to be light, broken, hued like curds, large and doubly coated (*Laghu jarjaraṁ dadhinibhaṁ bṛhad=dvisaṁsthānam=api Haimam*, LXXX.5). No pearl industry is known to exist now in this tract. Pearls from Kaubera (not identified) were noted for being uneven, black or white, light, brilliant and of good size (*viṣamaṁ kṛṣṇa-śvetaṁ laghu Kauberaṁ pramāṇa-tejovat*, LXXX.6).

Like diamonds, pearls with specific colours were assigned to the jurisdiction of different divinities. Thus pearls coloured like a lin flower were believed to be presided over by Viṣṇu; those like the moon, by Indra; those tinged like orpiment, by Varuṇa; black ones, by Yama; those hued like a ripe pomegranate fruit or *guñja*, by Vāyu; and, lastly, those resembling smokeless fire or lotus, by Agni (LXXX. 7-8).

We get a fairly long tariff of prices which are given in two denominations, *kārṣāpaṇa* and *rūpaka*. The weight and the intrinsic merits were taken into consideration while determining the price. The tariff is divided into two parts, (1) one single pearl of different units of weight, and (2) various numbers of pearls weighing a *dharaṇa* (LXXX.9-12, 13-16):—

I. *The Weight of a Pearl*			*The Price*	
(1)	4 *māṣakas*	...	5300	*kārṣāpaṇas*
(2)	$3\frac{1}{2}$,,	...	3200	,,
(3)	3 ,,	...	2000	,,
(4)	$2\frac{1}{2}$,,	...	1300	,,

1. Watters, II, p. 228.

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(5)	2	*māṣakas*	...	800 *kārṣāpaṇas*
(6)	$1\frac{1}{2}$	,,	...	153 ,,
(7)	1	*māṣaka*	...	135 ,,
(8)	4	*kṛṣṇalas*	...	90 ,,
(9)	$3\frac{1}{2}$	,,	...	70 ,,
(10)	3	,,	...	50 *rūpakas*
(11)	$2\frac{1}{2}$	,,	...	35 ,,

A similar tariff of prices is contained in Buddhabhaṭṭa's *Ratnaparīkṣā*. While there are certain close similarities, the differences cannot be overlooked; while Varāhamihira gives prices in terms of *kārṣāpaṇa* and *rūpaka*, Buddhabhaṭṭa gives in *rūpaka* alone; and it is curious to note that in spite of difference in regard to coin denomination, the first five figures are identical in the two lists.[1] It may indicate that *kārṣāpaṇa* and *rūpaka* are used as names of one and the same coin. It is also likely that the figures identical in the two lists give the standard market value while others refer to local variations.

II. *Number of Pearls Weighing a Dharaṇa*	*The Price*[2]
(1) 13	... 325 *rūpakas*
(2) 16	... 200 ,,
(3) 20	... 170 ,,
(4) 25	... 130 ,,
(5) 30	... 70 ,,
(6) 40	... 50 ,,
(7) 55	... 40 ,,
(8) 80	... 30 ,,
(9) 100	... 25 ,,
(10) 200	... 12 ,,
(11) 300	... 6 ,,
(12) 400	... 5 ,,
(13) 500	... 3 ,,

The groups of one-*dharaṇa* pearls specified above bore certain technical designiations useful in day-to-day business

1. Finot, p. xxxv of table..
2. Buddhabhaṭṭa gives another tariff, vide Finot, p. xxxv for table.

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transaction. Thus 13, 16, 20, 25, 30, 40, 55 and 80 or more pearls weighing a *dharāṇa* were called *Pikkā*, *Piccā*, *Arghā*, *Ardhā*, *Ravaka*, *Siktha*, *Nigarā* and *Cūrṇā* respectively (LXXX.17). These appear to have been popular stock-words in use among traders dealing in gemstones. We are told by the scholiast that these words were used in the places where pearls were mined (*etāś = c-ākarasthāne vyavahārārtham = upayujyante*). The fact that the necessity of coining such nomenclatures was felt shows that brisk trade in pearls was carried on during our period. We come across another list of names in Buddhabhaṭṭa; but none except for *Siktha* (*Sikta* in Buddhabhaṭṭa) agrees with those of Varāhamihira, suggesting the possibility that they refer to practices obtaining in different regions or periods. At the same time it shows the impossibility of one borrowing from the other.

The above tariff, says Varāhamihira, is intended for pearls of good qualities and the prices of intermediate groups are to be found out proportionately. The value of the inferior sort was to be reduced as follows—The market value of slightly black, white, yellowish, copper-coloured and slightly uneven pearls was fixed at 1/3rd less than that specified above; that of very rough, 1/6th less; and that of yellow ones, a half (LXXX.18-9).

So far about pearls derived from the mother-o'-pearls. Varāhamihira also devotes considerable space to giving an account of the pearls said to be derived from the remaining seven sources. It was believed that in the temples of the elephants belonging to the line of Airāvata born at the moon's conjunction with Puṣya and Śravaṇa synchronous with Sunday or Monday and in those of the Bhadra class of elephants born during the northern course of the sun and at the time of a solar or lunar eclipse are to be found pearls that are plentiful, large, variously shaped and brilliant (LXXX.20-21). The pearls produced in the root of the boar's jaw are said to have the lustre of the moon. Those from the fish are represented as large and as resembling the eyes of the fish (LXXX.23).[1] The cloud-born pearls possessing the brilliance of lightning and produced like hailstones,

1. For another allusion to fish-pearls, cf. XL.8.

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when falling from the seventh layer of the wind, it is said, are taken away by heavenly beings (LXXX.24). The serpents belonging to the lineage of Takṣaka and Vāsuki and those moving freely were believed to have bright and blue-tinged pearls in their hoods.[1] The mode of testing the genuineness of the serpentine pearls is given thus :—keep the pearl in question in a silver vessel on a blessed spot; if then there is a sudden rain it indicates its genuineness (LXXX. 25-6). The pearl originating from the bamboo is described as resembling camphor or crystal, flattened and uneven, whereas that born of the conch is said to be round, brilliant, and lustrous (LXXX.28).

We may be sure that these pearls are imaginary. The cloud-pearl is, as we have seen above, described as taken away by heavenly beings and thus not coming to the earth. The statement that to recognise the above pearls is impossible (LXXX.29) and that their price cannot be estimated (LXXX.22, 27, 29) point to the same conclusion. Fine perforation is regarded as one of the good qualities of a pearl, and Manu (IX.286) goes to the extent of laying down a fine for defective boring of stones. Curiously enough, the piercing of elephantine pearls is forbidden (LXXX.22).

It was customary with ancient Indian writers on medical science as well as on other branches of learning to ascribe certain medical and magical properties to precious stones in general and mythical ones in particular. In keeping with this tradition, Varāhamihira regards the aforermentioned pearls of mythical origin as highly sanctifying (LXXX.22, 23) and of immense value (23,29) and ascribes to them such magical properties as bestowing sons, victory in war (if the wearer be a king), freedom from disease and grief, good fortune, fame, wealth and other desired objects, and removing the effects of poison and misfortune (LXXX.22, 27, 30).

III. *The Ruby*

Although the ruby (*padmarāga*) is the third in the order of treatment, it is well-known that a ruby weighing more

1. Serpentine stones are also reefrred to in XII.5; LXXXI.5-6.

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than two carats exceeds a diamond of the same weight in value. The ruby is divided into three classes according as its origin lies in *saugandhika* (sulphur), *kuruvinda* (cinnabar), and *sphaṭika* (crystal). The characteristics of each of the three varieties are thus described: the ruby originating from sulphur has the lustre of bees, collyrium, lotus or the juice of the rose-apple fruit; that deriving its origin from cinnabar is grey (*śabala*), of dim brilliance, and mixed with mineral substances; and those born of rock-crystal are very brilliant, of many shades and pure.[1] Kauṭilya[2] also mentions *saugandhika* and seems to regard it as the best.

Precious stones in general are said to be good if they are smooth, dazzling with rays, pure, sparkling, heavy, nicely shaped, brilliant within and deep-red; on the contrary, those that are impure, of dim lustre, full of scratches, mingled with mineral substances, broken, ill-perforated, not attractive, and mixed with gravel are said to be defective (LXXXI.3-4). The weight, colour, lustre and other qualities were taken into account while fixing the price of a ruby. We get a table of prices, but the system of currency intended is left unspecified. If Utpala is to be relied upon, Varāhamihira has *rūpaka* in view. Thus a ruby weighing

1 *pala* (4 *karṣas*)	was priced	at	26,000 *rūpakas*
3 *karṣas*	,,		20,000 ,,
½ *pala* (2 *karṣas*)	,,		12,000 ,,
1 *karṣa*	,,		6,000 ,,
8 *māṣakas* (½ *karṣa*)	,,		3,000 ,,
4 ,,	,,		1,000 ,,
2 ,,	,,		500 ,,

The price of rubies with intermediate weights was fixed proportionately, taking into account their superior or inferior qualities. A ruby defective in colour, for instance, fetched only half the price specified above; that deficient in lustre, only 1/8th; that with few good qualities and many defects, 1/20th; and, that which is smoky, has many holes and fewer good characteristics, 1/200th (LXXXI.7-11).[3]

1. LXXXI.1-2. Cf. Buddhabhaṭṭa, III.7.
2. *Arthaśāstra*, II.11, p. 76.
3. For a different system of pricing, vide Buddhabhaṭṭa, III. 144.

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IV. *The Emerald*

Only one chapter consisting of a single stanza is allotted to the emerald. Emeralds tinged like a parrot's wings and bamboo leaves (green), plantain tree (greyish-yellow), and a *śirīṣa* flower (slightly yellow) are referred to. An emerald possessing good qualities is recommended for use while propitiating gods and manes (LXXXII.1; also mentioned in LIII.46).

Other Stones. We have very scanty information about other stones. *Śaśikānta* and *mahānīla* are merely varieties of rock-crystal and sapphire respectively. *Vimalaka, rājamaṇi, brahmamaṇi, jyotīrasa, sasyaka* and *śaṅkha* are not named in any other contemporary work and cannot be certainly identified. The *Cullavagga* (IX.iii.1) refers to *jotīrasa* and *śaṅkha*. *Vimalaka* is represented as having yellow shade (V.57; YY, VI.18). *Sasyaka* is said to be blue and is compared with Mercury (VII.20 & comm.). This is probably another name for the emerald.[1] S. M. Tagore regards *jyotīrasa* as identical with jasper or heliotrope.[2] Kauṭilya[3] speaks of *vimalaka, sasyaka* and *jyotīrasa* as varieties of inferior gems. Elsewhere he mentions the first two as *rūpyadhātus*.[4] Crystal is specially noted for its clarity, is compared with the moon, Jupiter and Canopus, and said to be found in the ocean (IV.30; VIII.53; XII.20, 5; LIII.110). *Vaidūrya* is specified for its lustre (X.21; XXVIII.3; XXIX.8; XLII.33), and Utpala describes it as bluish-yellow (*nīla-pīta*).[5] *Sphaṭika*,[6] *śukti, śaṅkha*[7], *vidruma*,[8] *vaidūrya*[9] and other jewels[10] are said to be found in the sea. Pearls, *śaṅkha* and *vaidūrya* are said to have been mined in the south.[11] We have a vague reference to a green stone (*harita-maṇi*, CIII.61), but without any specification. Another

1. S. M. Tagore (*Maṇi-mālā* cited by Finot, p. xviii) regards *gandha-sasyaka* as 'a reddish stone more or less bright'. The *sasyaka* described by Utpala must be different from it.
2. *Ibid.*
3. *Arthaśāstra*, II, 11, p. 77.
4. II.12, p. 82.
5. Comm. on XXX.20; XXXVII.1.
6. XII.5.
7. XII.4.
8. XII.2. The coral is also referred to in XLI.10; XVI.13; XXIX.8.
9. LXXXVI.10.
10. XII.1, 3, 5.
11. XIV.14.

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stone called *susāra* is also mentioned (LXXXVI.23), but there is nothing to indicate its identity.

The foregoing pages will have made it abundantly clear that Varāhamihira furnishes us with very valuabe information on the prosperous condition of jewel industry in the Gupta period and that in regard to many important details it is borne out by reliable external evidence. The value of this information is all the more enhanced by the fact that the *Bṛhat-saṁhita* is the oldest datable work to deal with this subject. No writer on the history of the *ratnaśāstra*, therefore, can ignore the valuable evidence analysed above.

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VI

WEIGHTS AND MEASUREMENTS

The system of weights and measurements in India differed from region to region. In a stanza from the *Samāsa-saṁhitā* quoted by Utpala on XXIII.2, mention is made of *Māgadha-māna*. Another standard system originated in Kaliṅga and was known as *Kāliṅga*. Both these systems are known to Caraka (Kalpasthāna, XII.105), who regards the former as superior to the latter.

TULĀ. We get an interesting account of the weighing balance (*tulā*) in XXVI.6, 9, according to which both the scale-pans (*śikya*, *śikyaka*) measuring six *aṅgulas* in diameter were fashioned from linen cloth; each of them was connected with the balancing rod (*tulā*) by means of four strings (*sūtra*), 10 *aṅgulas* in length; a cord (*kakṣyā*), 6 *aṅgulas* in length, held the rod between the two scales; the rod, 12 *aṅgulas* long, was made of gold, silver, *khadira* wood or a shaft which had wounded a man. Though this balance is described in connection with a quasi-religious ritual, it will not be wrong to assume that similar balances were used in ordinary business transactions as well.

WEIGHTS. Varāhamihira refers to gravitational (*tulā-māna*) as well as cubic (*parimāṇa*) measures. The following weights are specified—

1. *Taṇḍula* = 8 white mustard seeds (*sitasarṣap-āṣṭakaṁ taṇḍulo bhavet*, LXXIX.12). According to the table of weights given in *Caraka* (Kalpasthāna, XII. 87-88), 6 particles (*dhvaṁsis*) = 1 *marīci*, 6 *marīcis* = 1 *rakta-sarṣapa* (rape seed), 8 *sarṣapas* = 1 *taṇḍula*. It was used in weighing precious stones like diamonds.

2. *Kṛṣṇala* (LXXX.11), *Guñjā* (LXXX.12-13). The barberry seed served as the unit of weight for precious metals and stones. Probably there were two systems of weight current in different parts of the country, one based on *sarṣapa* and the other on *kṛṣṇala*; but sometimes they were used together in the same region. Fractions of *guñjā* were also in use (Cf. $3\frac{1}{2}$ *guñjās*, LXXX.11; $2\frac{1}{2}$ *guñjās*, LXXX.12).

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3. *Māṣaka* (LXXX.9, 10; LXXXI.8-9). According to the *Caraka* table, 2 *taṇḍulas* = 1 *dhānya-māṣa*, 2 *māṣas* = 1 *yava*, 4 *yavas* = 1 *aṇḍikā*, 4 *aṇḍikās* = 1 *māṣaka*; thus 32 *dhānyamāṣas* make one *māṣaka* (kalpa, XII.87-88). A different table is found in the *Kauṭilya* (II.19), which regards 10 *dhānyamāṣas* or 5 *guñjās* as equal to 1 *suvarṇa-māṣaka*. According to Amara (II.9.85) also, 5 *guñjās* make 1 *māṣaka* (Cf. *Manu*, VIII.134). A silver *māṣaka*, however, was equal to two *guñjās*.

4. *Karṣa* (LXXXI.7, 8). In the *Kauṭilya* (II.19) and Amara (II.9.87), 16 *māṣakas* = 1 *karṣa*. According to Caraka, 3 *māsas* = 1 *śāṇa*, 2 *śāṇas* = 1 *dramkṣaṇa*, 2 *dramkṣaṇas* = 1 *karṣa*, i.e., 12 *māṣas* = 1 *karṣa*. It was employed in weighing precious stones and metals.

5. *Pala* (LXXXI.7) = 4 *karṣas*.[1] Men weighing 1600 or 1000 *palas* (LXVIII.25, 29) and a ruby weighing half a *pala* (LXXXI.8) are mentioned.

6. *Dharaṇa*. Varāhamihira specifies *dharaṇa* as 1/10th of *a pala* (*pala-daśabhāgo dharaṇam*, LXXX.13).[2] Different *dharaṇa* units were in use for different articles. Kauṭilya, for instance, takes 88 white mustard seeds to be equal to one *rūpya-māṣaka* and 16 *rūpya-māṣakas* to form 1 silver *dharaṇa*, whereas 20 *taṇḍulas* constitute a *vajra-dharaṇa*.[3] Varāhamihira gives prices of diamonds weighing 20 *taṇḍulas* and below.

7. *Tulā* (LIV.17) = 100 *palas* (*Caraka*, Kalpa, XII. 97; *Amara*, II.9.87).

8. *Bhāra* = 20 *tulās* or 2000 *palas*.[4] According to Caraka, however, 4 *palas* = 1 *kuḍava*, 4 *kuḍavas* = 1 *prastha*, 8 *prasthas* = 1 *kaṁsa*, 4 *kaṁsas* = 1 *droṇa*, 2 *droṇas* = 1 *śūrpa*, 2 *śūrpas* = 1 *bhāra*, i.e. 2048 *palas* = 1 *bhāra*. Men weighing half a *bhāra* (*bhārārdha*), 1 *bhāra* and 1½ *bhāras* are referred to (LXVII. 106; LXVIII.18).

These weights may be given in a tabular form as follows:—

1. Cf. *Arthaśāstra*, II.19.; *Caraka*, Kalpasthāna, XII; *Manu*, VIII. 135; *Amara* II.9.86.

2. Cf. *Arthaśāstra*, II.19, p. 104. According to Manu (VIII.135), however, 10 *palas* = 1 *dharaṇa*.

3. *Arthaśāstra*, p. 103.

4. Cf. *Ibid*, p. 104; *Amara*, II.9.87.

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8 *Sita-sarṣapas*	=	1 *Taṇḍula*
5 *Kṛṣṇalas*	=	1 *Māṣaka*
16 *Māṣaksa*	=	1 *Karṣa*
4 *Karṣas*	=	1 *Pala*
1/10 *Pala*	=	1 *Dharaṇa*
100 *Palas*	=	1 *Tulā*
20 *Tulās* or 2000 *Palas*	=	1 *Bhāra*

MEASUREMENTS OF CAPACITY. Cubic measures were used alongside for measuring grains and liquid substances like water. We have references to the following measures of capacity:—

1. *Pala* (XXIII.2). It was probably the smallest unit of cubic measures and was adopted from the weight specified above.

2. *Kuḍava* (CIII.46). It is equal to 4 *palas*.[1] But as will be presently shown, for measuring water, it was probably counted as equal to $3\frac{1}{8}$ *palas*.

3. *Prastha* (LIV.17). 4 *kuḍavas* or 16 *palas* make 1 *prastha*.[2]

4. *Āḍhaka* (LIV.17). 4 *prasthas* or 64 *palas* constitute 1 ordinary *āḍhaka*. But while measuring rain-water an *āḍhaka* consisting of 50 *palas* was used (XXIII.2). Varāhamihira himself distinguishes the *āḍhaka* used in measuring water from the ordinary one. Thus in connection with the selection of a house-site, we are asked to dig a pit, fill the dug out earth in a water-*āḍhaka*, and to weigh the same; if one water-*āḍhaka*-full of earth weighs 64 *palas*, the site is suitable.[3] As stated by Varāhamihira himself, this was based on *Māgadha-māna*.[4] It is confirmed by Kauṭilya, who states that the *droṇa* measure

1. Cf. *Caraka*, Kalpasthāna, XII; *Amara*, II.9.89.
2. *Ibid.*
3. पलान्यपामाढकं चतुःषष्टिः LII. 91.
   Cf. Utpala: अथवा यत्र मृत्तिकानामाढकमपामम्बूनां चतुःषष्टिः पलानि भवेत् तद् धन्यमेव । एतदुक्तं भवति । भूमौ मृतिकां सङ्गृह्य अवटनिर्गतां तथा आढकमापूर्यं तोलयेत् । तद्यदि चतुःषष्टिः पलानि भवन्ति तद् धन्यं नान्यथेति ।
4. Cf. the *SS* verse cited by Utpala on XXIII.2.

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of state revenue is equal to 200 *palas* and that *āḍhaka* is $\frac{1}{4}$th of it. This shows that whereas the ordinary *āḍhaka* (probably according to the *Kāliṅga-māna*) consists of 64 *palas*, in the *Māgadha-māna* it is = 50 *palas*.

5. *Droṇa* (XXI.32, 34; XXIII.6-9; LIV.17; : LVI.2). It consists of 4 *āḍhakas*, i.e. 256 *palas* = ordinary *droṇa*, 200 *palas* = *Māgadha droṇa* employed in measuring water. *Droṇa* varied according to its use also. Thus Kauṭilya mentions *droṇa* measures constituted by 200, 187$\frac{1}{2}$, 175 and 162$\frac{1}{2}$ *palas*.

Ordinary Measures		*Māgadha measures*	
4 *Palas*	= 1 *Kuḍava*	3$\frac{1}{8}$ *Palas*	= 1 *Kuḍava*
4 *Kuḍavas* (16 *Palas*)	= 1 *Prastha*	4 *Kūḍavas* (12$\frac{1}{2}$ *Palas*)	= 1 *Prastha*
4 *Prasthas* (64 *Palas*)	= 1 *Āḍhaka*	4 *Prasthas* (50 *Palas*)	= 1 *Āḍhaka*
4 *Āḍhakas*	= 1 *Droṇa*	4 *Āḍhakas* (200 *Palas*))	= 1 *Droṇa*

LINEAL MEASURES (*PRAMĀṆA*). Varāhamihira mentions the following lineal measures:—

1. *Aṅgula*. It is stated that the minutest particle of dust seen when the sun passes through the interstics of a window is called *paramāṇu* and is the first of the lineal measures. In the table given by our author, 8 *paramāṇus* = 1 *rajas* (a particle of dust), 8 *rajas* = 1 *vālāgra* (hair-edge), 8 *vālāgras* = 1 *likṣā* (nit), 8 *likṣās* = 1 *yūkā* (louse), 8 *yūkās* = 1 barley-corn, 8 barley-corns = 1 *aṅgula*.[1] This is the smallest practical measure and is roughly equal to $\frac{3}{4}$th of an English inch. Various kinds of *aṅgulas* were in use. Thus according to a stanza of Viśvakarman cited by Utpala, 8 *yavas* = largest *aṅgula*, 7 *yavas* = middling *aṅgula*, 6 *yavas* = lowest *aṅgula* measure.[2]

1. जालान्तरगते भानौ यदणुतरं दशनं रजो याति ।
तद्विन्द्यात् परमाणुं प्रथमं तद्धि प्रमाणानाम् ॥
परमाणुरजो वालाग्रलिक्षयूकं यवोऽङ्गुलं चेति ।
अष्टगुणानि यथोत्तरमंङ्गुलमेकं भवति सङ्ख्या ॥ LVII. 1-2,

2. यवा मध्यान्विता अष्टावङ्गुलं ज्येष्ठमुच्यते ।
सप्त मध्यमसङ्ख्यानामङ्गुलं षट् कनीयसाम् ॥ *BS*, Vol. II, p. 663.

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Varāhamihira defines a practical digit (*karmāṅgula*) as the space covered by eight husked barley corns placed breadth-wise touching each other.[1]

2. *Vitasti* (XXVI.9). According to the table given in the *Arthaśāstra*, 12 *aṅgulas* = 1 *vitasti*.[2]

3. *Aratni* (LXXI.3). In Kauṭilya's table, 2 *vitastis* or 24 *aṅgulas* = 1 *aratni* or a *Prājāpatya hasta*. But Utpala takes it to be a smaller cubit with the fist closed (*aratniḥ kṛtamuṣṭi-hastaḥ, kaniṣṭhāsama iti kecit*).

4. *Hasta* (XXIII.2; XXXIII.6, 7; XLIII.3; LII.4 ff., etc.) = 24 *aṅgulas*. Various kinds of *hastas* were in use. Kauṭilya informs us that a *hasta* of 54 *aṅgulas* was employed in measuring forests and that of 28 *aṅgulas* in measuring pastures. Utpala mentions three kinds of *hasta* measure: the *hasta* constituted by 24 *aṅgulas* of eight barley grains was called *Praśaya*; of seven, *Sādhāraṇa*; and of six, *Śama*. This last is mentioned in LII.19, but the commentator states that it is used here without any technical sense and that the *hasta* made up by 24 *aṅgulas* of eight barley corns is intended.[3]

5. *Daṇḍa* (XXIV.9). In the *Arthaśāstra* table, 1 *daṇḍa* = 4 *aratnis* or *hastas*.[4] But while commenting on LXXII.3, Utpala equates *daṇḍa* with six *hastas* and *daṇḍārdha* with three (*daṇḍaṁ ṣaḍḍhasta-pramāṇaṁ tad=ardha-vistṛtaṁ hasta-traya-vistīrṇam*).

6. *Dhanuṣ* (XXXIII.6), the same as *daṇḍa*.

7. *Puruṣa* Varāhamihira employs the *puruṣa* measure to

1. कर्माङ्गुलं यवाष्टकमुदरासक्तं तुषैः परित्यक्तम् । LXXVIII. 8.
2. *Arthaśāstra*, II.20, p. 106.
3. इत्यत्र संदिह्यते किमष्टयवेनाङ्गुलेन चतुर्विंशत्यंगुलैर्यो हस्तः स सम इति । विश्वकर्मणा त्रिविधो हस्त उच्यते ..... तत्राष्टयवाङ्गुलः प्रशयाख्यः । सप्तयवाङ्गुलः साधारणः । षड्यवाङ्गुलः शमाख्य इति । अत्रोच्यते । आचार्येण शब्दाभिधानसामान्येनैव हस्तः शमोऽभिहितः । अन्यश्च विश्वकर्मणा त्रिविधस्यापि हस्तस्य प्रत्येकं कर्म प्रदर्शितम् । तत्राप्यष्टयवेनैवाङ्गुलेन यो हस्तस्तेन गृहकर्मोक्तम् ।
—*BS*, Vol. II, p. 663.

Cf. तथा च पुराणे चतुर्हस्तो धनुः स्मृतः ।
धनुर्दण्डो युगं नाली तुल्यान्येतान्यथाङ्गुलैरिति ।
—Utpala on XXIV.9.

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denote the length (XXXIII.8) and depth (LIII.6ff.). Kauṭilya knows the *puruṣa* measure to be of three kinds:—(i) 84 *aṅgulas* = 1 *vyāma* or *khāta-puruṣa*, meant for measuring ropes or moats; (ii) 96 *aṅgulas* or 4 *aratnis* = 1 *puruṣa*; (iii) 108 *aṅgulas* = 1 *puruṣa*, for measuring sacrificial altars.[1] Utpala takes the *puruṣa* measure mentioned in XXXIII.8 as equivalent to the first (*hasta-trayaṁ sārdham*). He further informs us that in LIII. 6 ff. it denotes the height of a man with raised arms, i.e. 120 *aṅgulas* or 7½′ (*Puruṣa-śabden—ātr—ordhvabāhuḥ puruṣo jñeyaḥ sa ca viṁśaty = adhikam = angulaśataṁ bhavat—iti sarvatra paribhāṣā*).

8. *Yojana* (XXI.3; XXIII.4; XXX.32-33; XXXII.28). According to the *Arthaśāstra*, 1000 *dhanuṣ* (4000 *hastas*) = 1 *goruta* × 4 = 16000 *hastas* or 8000 yards = 1 *yojana*, corresponding to 4.54 English miles. A bigger *yojana* is named in a verse from Puliśa cited by Utpala : 4000 *hastas* or 2000 yards 1 *krośa* × 8 = 32000 *hastas* or 16000 yards = 1 *yojana*, or 9.99 English miles.[2]

These measures are given in a tabular form below :—

A smallest particle of dust	= 1 *Paramāṇu*	
8 *Paramāṇus*	= 1 *Rajas*	
8 *Rajas*	= 1 *Vālāgra*	
8 *Vālāgras*	= 1 *Likṣā*	
8 *Likṣā*	= 1 *Yūkā*	
8 *Yūkās*	= 1 *Yava*	
8 *Yavas*	= 1 *Aṅgula*	= ¾″
8 Husked barley grains placed breadthwise	= 1 *Karmāṅgula*	
12 *Aṅgulas*	= 1 *Vitasti*	= 9″
24 *Aṅgulas*	= 1 *Hasta, Śama, Aratni*	= 1½′
4 or 6 *Hastas*	= 1 *Daṇḍa*	= 6′ or 9′
4 *Hastas*	= 1 *Dhanuṣ*	= 6′
3½ or 5 *Hastas*	= 1 *Puruṣa*	= 5¼′ or 7½′
16000 or 32000 *Hastas*	= 1 *Yojana*	= 4.54 or 9.99 English miles.

1. *Arthaśāstra*, II.20, pp. 106-107.
2. योजनमष्टौ क्रोशाः क्रोशश्चत्वारि करसहस्राणि ।
हस्तः शङ्कुद्वितयं द्वादशभिः सोऽङ्गुलैः शङ्कुः ॥ *BS*, Vol. I, p. 48.

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VII

COINAGE

As we have seen above,[1] Varāhamihira refers to the coin denominations, *kārṣāpaṇa* and *rūpaka*, while giving the tariff of prices of precious stones. A glance at the first table laying down the prices of a pearl of different weights[2] would lead us to conclude that *kārṣāpaṇa* and *rūpaka* are used by Varāhamihira as two different names of one and the same coin. While the prices of pearls weighing from 4 *māṣakas* to 3½ *rattis* (*kṛṣṇalas*) are specified in terms of *kārṣāpaṇa*, those of pearls weighing 3 and 2½ *ratis* are given in *rūpakas*. The prices, like the weights of pearls, are clearly in the descending order. The price of a pearl weighing 3½ *kṛṣṇalas* is stated to be 70 *kārṣāpaṇas*; this is immediately followed by the statement that a pearl weighing 3 *kṛṣṇalas* fetches 50 *rūpakas* by way of its price, indicating thereby that in Varāhamihira's time *rūpaka* and *kārṣāpaṇa* were treated as synonyms. This inference finds support from a comparative study of the tables of prices given by Varāhamihira and Buddhabhaṭṭa also. Thus, if Utpala is to be relied upon, Varāhamihira gives prices of diamonds of different weights in *kārṣāpaṇas*, while Buddhabhaṭṭa states the price in terms of *rūpaka*; and yet the highest figure in the two lists is identical : 200,000 *kārṣāpaṇas* according to Varāhamihira, and the same amount of *rūpakas* according to Buddhabhaṭṭa. Similarly, prices of a pearl of weights varying from 4 *māṣakas* to 3½ *kṛṣṇalas* are given in *kārṣāpaṇas* by Varāhamihira and in *rūpakas* by Buddhabhaṭṭa and yet the first five figures in the two lists are the same. This leaves absolutely no doubt about the synonymity of the words *rūpaka* and *kārṣāpaṇa*.

What are we to understand by *rūpakas* and *kārṣāpaṇas* in the present context ? According to an unnamed authority cited by Utpala (on LXXIX. 12-13), 20 cowrie shells = 1 *kākiṇi* ; 4 *kākiṇis* = 1 *paṇa* also known as *caturtha*; 4 *caturthakas*

1. *Supra*, pp. 328 ff.
2. *Supra*, pp. 332-33.

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= 1 *purāṇa* also called *kārṣāpaṇa*.[1] Now, according to Manu, a silver coin, 16 *raupya-māṣakas* or 32 *rattis* in weight, was known as *purāṇa*.[2] And there is evidence to believe that the enormous numbers of silver punch-marked coins that were struck to the standard of 32 *rattis* or about 56 grains were actually known by the names *kārṣāpaṇa* and *purāṇa*. Later, in the early centuries of the Christian era when the Śaka Kṣatrapas of Western India issued silver coins on the pattern of the hemidrachms of the Indo-Greek rulers, they were also known as *kārṣāpaṇa* as has been amply demonstrated by Rapson.[3] After the Śakas were defeated by the Gupta emperor Candragupta II Vikramāditya, the latter and his successors struck silver coins of the same weight as those of the Kṣatrapas for circulation in the newly conquered territory. Afterwards, when the usefulness of silver coins was realised, the successors of Candragupta II struck silver coins of the same weight for circulation in the Middle Country (Madhyadeśa) also. These coins were known as *rūpakas* as we learn from the Baigram copper-plate inscription of the Gupta year 128 (=A. D. 448) which gives the ratio between the Gupta gold and silver coins as 1 : 16.[4] The silver coins of the Kalacuri king Kṛṣṇarāja (*circa* 550-575 A.D.), struck on the pattern of the silver currency of the Guptas,[5] also went by the denomination of *rūpaka*.[6] This would leave the impression that the older denomination of *kārṣāpaṇa* was completely replaced by *rūpaka*, and it has been accordingly suggested that the former denomination gave place to the latter.[7] It is indeed

1. अशीत्या श्वेतिकानां पणः पणिविंशत्या कार्षापणः ॥ तथा च ।
विंशति श्वेतिका प्रोक्ता काकिण्येका विचक्षणैः ।
तच्चतुष्कं पण इति चतुर्थं तच्चतुष्टयम् ॥
चतुर्थकचतुष्कं तु पुराण इति कथ्यते ।
कार्षापणः स एवोक्तः क्वचित्तु पणविंशतिः ॥

2. *Manusmṛti*, VIII.136.
3. Rapson, *BMC, Andhras*, etc., p. clxxxiii f.
4. D. C. Sircar, *Select Inscriptions* (2nd edition), p. 357, text line 6, note 1.
5. V. V. Mirashi, *Inscriptions of the Kalacuri-Chedi Era, CII*, IV, p. clxxxi.
6. The silver coins of Kṛṣṇarāja were known as *Kṛṣṇarāja-rūpakas* See *ibid*, p. 151, lines 38-9.
7. *Ibid*, p. clxxxii.

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a fact that the word *kārṣāpaṇa* in the sense of a silver coin is of rare occurrence in later inscriptions. But the *Bṛhat-saṁhitā* evidence leaves no doubt whatsoever that the word *kārṣāpaṇa* continued to be used for silver coins even in the post-Gupta period. The currency of the word in this sense as late as the 9th century A. D. seems to be indicated by Utpala's commentary.

We have no means to determine the silver currency that Varāhamihira had in view while referring to *rūpakas* and *kārṣāpaṇas*. Most probably he had before him late Gupta silver coins. But there is another possibility also. Varāhamihira was a resident of Avanti,[1] and, according to a statement of Āmarāja, he died in Śaka 509 (A. D. 587=).[2] After the first quarter of the sixth century A. D. the Avanti region including Ujjayinī had come under the possession of the Early Kalacuris of Māhiṣmatī. Of them at least one, Kṛṣṇarāja, who seems to have flourished in the third quarter of the sixth century, is known to have issued silver coins which came to be known after his own name as *Kṛṣṇarāja-rūpakas*.[3] It is not impossible, therefore, that Varāhamihira had the silver coins of the Kalacuris in view.

The great popularity of the silver coins in Western India is evident from the fact that in the tabulation of the prices of diamonds Varāhamihira refers to them (i. e. silver coins) merely by mentioning figures, the coin denomination being left unnamed as it was commonly known to the people. It was a common practice in ancient India to refer to the most common denomination merely by citing amounts, the knowledgeability of the denomination being taken for granted. Thus, Pāṇini refers to articles purchased with 100, 1000, 1500 and 2000 without specifying the name of the coins. In all these cases silver *kārṣāpaṇa* is meant as being the standard coin of his time. Similar references are found in the Jātakas, Kauṭilya's *Arthaśāstra* and Patañjali's *Mahābhāṣya*.[4]

1. *BJ*, XXVIII.9.
2. *Supra*, p. 13.
3. *CII*, p. 151, lines 38-9.
4. *JNSI*, XV, p. 32.

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Incidentally, it may be pointed out that the *Bṛhat-saṁhitā* contains the earliest datable *literary* reference to the *rūpaka*.[1]

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1. As we have seen above, the *Ratna-parīkṣā* of Buddhabhaṭṭa, which appears to have been composed about the same time as the *Bṛhat-samhita*, also contains reference to *rūpakas*.

The word *kṛṣṇala* occurring in LXXX. 11 is sometimes supposed to refer to the coin of that name (*JNSI*, XIX, p. 116). But in the verse under consideration it is used as a synonym of *guñjā* and denotes a weight. The relevant portion of the verse (चत्वारः कृष्णाला नवतिमूल्याः) actually means that a pearl, 4 *kṛṣṇalas* in weight, is priced at 90 *kārṣāpaṇas*.

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Chapter VI

ASTROLOGY IN EVERY-DAY LIFE

As the *Bṛhat-saṁhitā* is a treatise on natural astrology, a work like ours analysing its contents will remain incomplete without a notice of astrological beliefs current in those days. At the same time, it is neither necessary nor possible to record them in full, for that will mean the reproduction of the whole of the *Bṛhat-saṁhitā* which is not the object of the present work. Hence we shall indicate them only briefly.

The history of astrological beliefs in India goes back to a hoary antiquity. The Vedic civilization exhibits belief in the *śākunas*, prognostications and omens.[1] In the *Chāndogya Upaniṣad* (VII.1.2, 4), *daiva* and *nakṣatra-vidyā*, meaning the knowledge of the *utpātas* or natural disturbances and *jyautiṣa* respectively, are included in the list of the sciences studied by Nārada. Pāṇini refers to the belief in divination from bodily signs and to fortune-telling by soothsayers, while the inclusion in the Ṛgayaṇādigaṇa of *utpāta*, *saṁvatsara*, *muhūrta* and *nimitta* as subjects of study indicates the study of astronomy and omens in his days.[2]

SĀMVATSARA. The office of the astrologer variously called *sāṁvatsara*,[3] *sāṁvatsarika*,[4] *sāṁvatsarapāṭhin*,[5] *daivajña*,[6] *daivavid*,[7] and *daivacintaka*[8] was a *sine qua non* of the state in ancient India. As may be naturally expected, Varāhamihira is the strongest advocate of the astrologer's cause and devotes one full chapter (Sāṁvatsara-sūtrādhyāya, Ch. II) to the description of the qualifications and importance of the *sāṁvatsara* for the state and society. He advises the king to respect and

1. V. R. Pandit, Omens and Portents in Vedic Literature, *Proceedings of the All-India Oriental Conference*, Nagpur Session (1946): *JUB*, XXVI, Pt. ii, pp. 76 ff.
2. III.2.53; I.4.39; IV.3.73. Cf. V. S. Agrawala, *India as Known to Pāṇini*, pp. 336-7.
3. II. p. 19; II.8, 9, 10.
4. II.11.
5. II.12.
6. II. p. 84; II.16
7. II.15, 22.
8. II. p. 73; II. 12, 20.

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secure the services of a learned *sāṁvatsara*,[1] who was to appoint four other astrologers to assist him.[2] He observes that a king who does not honour a learned astrologer is destined to destruction and that neither a thousand elephants nor four times that number of horses are able to accomplish so much as a single astrologer who knows well time and clime and likens a king without a *sāṁvatsara* to the night without a lamp, to the firmament without the sun and to a blind man mistaking his path.[3] He further states that neither parents nor relations and friends are so solicitous of the welfare of the monarch and his retinue as a reliable astrologer seeking fame and exhorts one desirous of prosperity not to live in a country where there is no *sāṁvatsarika*.[4] The *Gautama-dharmasūtra* (XI.15-16), the *Viṣṇudharmasūtra* (III.75), the *Yājñavalkya-smṛti* (I.307, 333; III. 171-2), the *Viṣṇudharmottara* (II.4.5-16) and the *Kāmandakīya Nītisāra* (IV.33) also plead for a king's dependence on the astrologer.[4a] Even Kauṭilya, who is against too much reliance on astrology, mentions *kārtāntika*, *naimittika* and *mauhūrtika* in the list of royal officers of the sixth category drawing an annual allowance of 1000 *paṇas*.[5] It must be remembered, however, that as an unorthodox science the practice of astrology is unequivocally condemned by early Buddhist, Jaina and Brāhmaṇical writers. Thus the *Brahmajālasutta*[6] includes *nimitta*, *uppādo* (*utpāta*) and *aṅgavijjā* in the list of condemned sciences. The Jātakas frequently refer to the Brāhmaṇas taking to the profession of foretelling the future by observing the movements of the limbs (*aṅga vijjā-pāṭhakas*) and auspicious marks on the body (*lakkhaṇa-pāṭhakas*) and reading dreams (*supiṇa-pāṭhakas*), the diviners (*nemittikas*) and the *nakkhatta-jānanakas* and accuse them of resorting to fraudulent practices.[7] The Jaina works like the *Ṭhāṇāṅga-*, *Samavāyāṅga*-and the *Uttarādhyayana-sūtra*, too, include them in the category of sinful sciences and prohibit the Jaina monks to practise them.[8] Manu (VI.50) also enjoins that a

1. II. 10, 19.
2. II. p. 74.
3. II.6, 20, 8..
4. II.22, 11.
4a. Cf. *Mahābhārata*, II.5.42
5. *Arthaśāstra*, IX.4; V. 3.
6. Engl. Tr. by Rhys Davids, pp. 16-18 and notes.
7. Mehta. *Pre-Buddhist India*, p. 327.
8. *Aṅgavijjā*, Introduction by Dr. Moti Chandra, p. 35.

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Brāhmaṇa should in no case try to procure alms by practising the art of *utpāta*, *nimitta*, *nakṣatra*[1] and *aṅgavidyā*. But this series of strong condemnations only tends to show that these arts enjoyed great popularity with the common folk. And with the increasing belief in the impact of astrological factors on worldly life the attitude of Brāhmaṇical writers underwent a change which is reflected in their advocacy of the king's reliance on the astrologer, as shown above.

Varāhamihira places a very high ideal before the *sāṁvatsara*. The latter was not only required to be well-versed in the three branches of *jyotiṣa*, viz., mathematics, horoscopy and natural astrology, and to possess necessary intellectual attainments, but was also expected to be physically good-looking, for it was believed that the physical form is an index to one's merits and defects.[2] The various subjects he was required to study will be mentioned in Chapter VIII. One desirous to be a real *sāṁvatsara* was expected to have a sagacious bent of mind. Thus, 'it is possible for a man trying to cross the ocean to reach the other shore by the force of the wind, but an unsaintly man cannot reach even mentally the end of the great ocean called Kāla-puruṣa, that is, astrology.'[3] But, as usual, there were astrologers who made forecasts by taking recourse to such objectionable practices as sorcery, possession by deities, and hearsay,[4] who professed to be diviners without studying the science properly (II.16), and who made predi-

1. Also cf. *Manu*, III.162.
2. II, pp. 19-21.
3. II.4.For exaltation of the astrologer, cf. II, 3, 5, 7, 9, 12, 13, 14, 21.
4. कुहकावेशपिहितैः कर्णोपश्रुतिहेतुभिः ।
   कृतादेशो न सर्वत्र प्रष्टव्यो न स दैववित् ।
   Cf. Utpala—कुहकेनेन्द्रजालेन प्रसेनादिकेन आवेशेन देवतादिदेह-प्रवेशेन पिहितः प्रच्छन्नोऽदृश्यशरीरः । कुत्रचित्सुषिरे भित्त्यादिके अभ्यन्तरस्थितयाऽव्यक्तया वाचा सम्भाषते । एतैः कुहकावेशपिहितैः । तथा कर्णोपश्रुत्या कश्चिन्मन्त्रविशेषं जपतः कर्णे यथेष्टं कथयति लोके कर्णपिशाचिकेति प्रसिद्धा अथवा प्रष्टारो यत्रोपविष्टाः स्थिता-स्तन्मध्ये आत्मीयं शिशुं विसृज्य तेषां कथां परस्परं क्रियमाणामा-कर्ण्य पितुर्वक्ति यथा यस्येदमभिज्ञानं तस्य भवता इदं वक्तव्यमिति हेतुना तकणाशयं बुद्ध्वा ।

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ctions only for the sake of material gain (II.18). Varāhamihira brands such people as *nakṣatra-dūṣakas* (II.16) and condemns them in unequivocal terms (cf. II.1, 2, 17).

Our author mentions a very wide range of astrological beliefs current in his time. He does not merely record superstitions relating to the sun, the moon, planets, constellations and zodiacal signs but also dilates upon the interpretation of the movements of the limbs and bodily marks, the signs of the great men, the *śākunas* and the like. Let us now proceed to notice them in brief.

SUN. While the natural course of the sun was taken to foreshadow good results, its unnatural course was supposed to be calamitous. It was believed that the sun retracing its motion without reaching the *rāśis* Makara (in the northern course) and Karkaṭaka (in the southern course) forebodes destruction to the south and west and to the north and east respectively (III.4). On the other hand, the sun returning after crossing these two *rāśis* was believed to promote welfare and prosperity of crops (III.5). It was believed that even on non-eclipse days[1] a planet called Tvaṣṭṛ may darken the solar disc which results in the destruction of seven kings and their subjects by weapons, fire and famine (III.6).[2] Thirty-two comets (*ketus*) known as Tāmasakīlakas and regarded as the sons of Rāhu when seen in the sun's disc were believed to be followed by evil results like famine, thefts, foreign invasion, king's death, deposition and replacement and the outbreak of various diseases which were predicted by observing the colour, position and shape of the comets (III.7-20). Various auspicious and inauspicious results were also supposed to accrue from the colour and form of the sun, from the rainbow, halo and the clouds surrounding it, and from the position of the mock sun and the meteors, thunderbolt and lightning striking the sun (III.21-39).

MOON. The moon passing by the south of the constellations Jyeṣṭhā, Mūla, the two Āṣāḍhās, Viśakhā and Anurādhā was considered to be inauspicious and believed to cause fear from fire and the destruction of seeds, aquatic beings and forests,

1. I. e., the days other than the 8th and 14th of each fortnight of a lunar month and the full and new moon days.
2. Cf. Pārāśarā cited by Utpala.

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while that passing through the middle of Viśākhā and Maghā was regarded as auspicious (IV.5-6). The ten unusual appearances of the moon called *Nausaṁsthāna*, *Lāṅgala*, *Duṣṭalāṅgala*, *Sama*, *Daṇḍa*, *Kārmuka*, *Yuga*, *Pārśvaśāyin*, *Āvarjita* and *Kuṇḍa* and the good and evil results accruing from them are described in IV.8-15. The various shapes, sizes and colours of the moon were also taken to have their own effects (IV.16-20, 29-32). The moon's orb being broken by various planets inciuding a comet was believed to forebode evil (IV.21-27). It was believed that if the moon, when eclipsed, is cut by a meteor, it foreshadows death of the king born in the star where the moon is posited for the time being (IV.28).

ECLIPSE. Though the fact that the lunar and solar eclipses are caused by the moon entering the shadow of the earth and the disc of the sun respectively was known (V. 8. Also cf. V.4-7, 9-13), it was popularly believed that they are caused by the demon Rāhu, the son of Siṁhikā, a wife of the sage Kaśyapa. His head, even though chopped off by Viṣṇu, was, according to popular belief, not deprived of life as a result of the potency of the *amṛta* he had tasted, and became a planet (V.1). It was believed that his disc, though similar to that of the moon and the sun, is not visible in the firmament on non-eclipse days owing to a boon of Brahmā (V.2).[1] Some held that only the head and tail of Rāhu can be seen; others thought that he has a serpentine form; still others opined that he is formless and of the nature of pure darkness (V.3). That Rāhu is really the ascending node of the moon is clearly stated in V.15. It was a current belief that an eclipse can be ascertained beforehand by symptoms in the form of portents (*utpātas*), that an eclipse cannot occur when five planets combine, and that the direction of the

1. The story under reference may be briefly summarised as follows:— Being angry at the untimely request of Siṁhikā for a son, Kaśyapa gave her a dreadful son who came to be known as Rāhu. Immediately after his birth, he fought a battle in which he was defeated by Aditi's sons. Enraged at this, he performed severe penance and secured from Brahmā a boon conferring on him the status of a planet, immortality, victory over the gods and the power to devour the sun and the moon. But Viṣṇu chopped off his head by his discus and said, 'Let Brahmā's words be true; in your own period you may eclipse the two luminaries and thus indicate good and bad things for the world.' Cf. Parāśara cited by Utpala on V. 2.

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beginning and the end of an eclipse can be guessed by observing the direction of the spread or otherwise of a drop of oil poured on the surface of water on the preceding eighth lunar day. Varāhamihira refutes all these notions (V.16-17, 18. Cf. Parāśara, Garga and Vṛddha Garga, cited by Utpala). Similarly, the possibility of an eclipse taking place shortly prior to or after the calculated time and its calamitous effects was conceded by earlier writers but is ridiculed by our author (V. 24-25). The six-month periods since the creation and the eclipses occurring therein were believed to be presided over by Brahmā, the moon, Indra, Kubera, Varuṇa, Agni and Yama in a descending order. An eclipse taking place in one or other of these periods was believed to forebode various results, good or bad (V.19-23). The belief that both solar and lunar eclipses taking place in one and the same month foreshadow destruction of kings through open rebellion in their army and bloodshed (V.26) is also found in the *Mahābhārata*. In the Bhīṣmaparvan (3.32-3) both solar and lunar eclipses are said to have taken place shortly prior to the Bhārata war. Similarly, Rāhu eclipsing both the sun and the moon simultaneously is mentioned in the context of the battle between Arjuna and the Saindhavas (Aśvamedhikaparvan, 77.15. Also cf. Udyogaparvan, 143.11). The occurrence of dust storm, heavy dew, earthquake, meterors, variegated clouds, thunder and similar other portents within a week of the termination of an eclipse was taken to be inauspicious, while clear rain was taken to foreshadow prosperity to crops (V.92-6). Similarly, while a solar eclipse occurring after a fortnight of the termination of a lunar eclipse was believed to forebode ill, its *vice verse* was regarded as auspicious (V.97-8).[1]

MARS, MERCURY, JUPITER, VENUS, SATURN. Similar

1. The effects of an eclipse, which differed from country to country and community to community, were believed to depend on such factors as the sun and the moon rising or setting being eclipsed (V.27), an eclipse taking place or ending in different parts of the day (V.28-31), different directions or *ayanas* (V.32-4), the various zodiacal signs occupied by the two luminaries at the time of an eclipse (V.35-42), the month in which an eclipse takes place (V.69-80), the form (for different names see V.43-52) and colour (V.53-9) of the eclipse, and the different planets aspecting the sun and the moon when eclipsed (V.60-62). For other details, see V. 63, 81-91. Similar effects were expected from the eclipse of other planets (V.64-8).

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results were also attributed to the motion of the five planets, Mars[1], Mercury[2], Jupiter[3], Venus[4] and Saturn. It was believed that the towns besieged when Mercury is eclipsed are freed when it emerges from the sun. Others believed that an invading army gets possession of a town when Mercury is seen in the west (VII.19). While Jupiter passing through two or two and a half constellations in a year was supposed to yield good or mixed results, that going through more than this number of stars was believed to destroy the crops (VIII.16). Venus seen before sunset or for the entire duration of the day was supposed to cause fear, famine and diseases, while its sight at mid-day in conjunction with the moon was believed to inspire dissension in the king's army and the town (IX.23). Saturn, in whichever *nakṣatra* it might stay, was believed to bring about calamity to different countries, peoples, professions and communities (X.1-18). The presence at a time of Jupiter in Viśākhā and of Saturn in Kṛttikā, or of both in one and the same constellation was also taken to be calamitous (X.19).

KETUS. The *ketu* or comet is defined as the semblance of fire when there is really no fire except in glow-worms, Piśācas, jewels, etc., which have a fire-like appearance (XI.3). That the time of the appearance and setting of a *ketu* cannot be mathematically calculated and that there are three kinds of *ketu*, i.e., celestial, atmospheric and terrestrial, is stated in XI.2. According to different authorities, *ketus* number 101 or 1000. Nārada held that there is only one *ketu* which assumes manifold forms (XI.5).[5] The atmospheric comets are those that are seen on flagstaffs, weapons, houses, horses, elephants and the like; those seen in planets are celestial, and those other than these two are terrestical (XI.4).T he good or bad effects of a *ketu* were determined through its rising and setting, position (the part of the firmament where a *ketu* appears vis-a-vis planets and stars), its contact with planets and stars, smoky

1. For the different names of Mars beginning its retrograde motion in different planets, see VI.1-5.
2. For various names of Mercury's course through different stars, vide VII.8-13; for different kinds of its motion, see VII.15-16.
3. For various results attributed to the years of Jupiter's cycle, vide VIII.1-14, 20-52.
4. For the nine *vīthis* and six cycles of Venus, vide IX.19, 10-22.
5. For the enumeration of 1000 *ketus*, see XI.10-28.

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matter and colour (XI.6). It was believed that the effects of a *ketu* last for as many months or years as the number of days or months during which it is visible, the effects commencing three weeks after its appearance (XI.7). A *ketu* that is short, slender, clear, glossy, straight, white, appearing for a short time and is followed by rain was regarded as auspicious, while the one with a form quite reverse of the above was called *Dhūmaketu* and considered to be inauspicious, especially when it resembles the rainbow or has 2 or 3 crests (XI. 8-9). Similarly, the *ketus* called *Asthiketu* (XI.30), *Kapālaketu* (XI.31), *Raudra* (XI.32), *Calaketu* (XI.33-36), *Śvetaketu* (XI.39), *Raśmiketu* (XI.40) and *Saṁvarta* (XI.51-2) were believed to yield bad results; those called *Kumuda* (XI.43), *Maṇiketu* (XI.44-5), *Jalaketu* (XI.46), *Padmaketu* (XI.49) and *Āvarta* (XI.50) were believed to forebode prosperity; and those known as *Vasāketu* (XI.29), *Ka* (XI.37-8), *Dhruvaketu* (XI.41-2) and *Bhavaketu* (XI.47-8) were supposed to have mixed effects. The inauspicious *ketus* dimming or touching various stars were supposed to destroy the kings of different countries (XI.53-60). A *ketu* with its crest hit by a meteor or the one visible right from its rising was considered generally auspicious but unfavourable to the Colas, Avagāṇas, white Huns and Cīnas (XI.61). It was believed that a king, invading the countries belonging to an asterism hit by a *ketu* or those situated in the direction where *ketu's* crest is bent or towards which it is projecting, is sure to obtain victory (XI.62).

CANOPUS. Canopus (Agastya), if rough, russet, smoky, throbbing, madder-coloured or tiny and being struck by a meteor or a comet, was believed to cause drought, fear, famine, wars, siege of the town, pestilence, etc. (XII.21,19), while that which shines like gold or silver was supposed to yield contrary results (XI.20).

According to popular belief, various commodities, castes, professions, peoples and other living beings were assigned to one or the other star of the Great Bear (*Saptarṣis*, XIII), constellation (Ch. XV), planet (Ch. XVI) and zodiacal sign (Ch. XL) on which depended their prosperity or scarcity.[1] As we have seen

1. For the assignment of countries and peoples to *nakṣatra*-triads, see *supra*, Ch. II, Section. 1.

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above, the growth of crops and the fluctuation of prices were also believed to depend on astrological factors.[1]

The abundance of fruits and flowers in trees was believed to indicate the availability in abundance of various commodities as also the thriving of certain crops (Ch. XXIX). Thus the prospects of *kalama* rice were to be determined from the luxuriance of flowers and fruits in the *śāla* tree; *raktaśāli* from red *aśoka*, so on and so forth.

Various results, good and bad, were also attributed to planetary conflicts, the moon's conjunction with different planets, the years presided over by different planets and planetary triangles (Chs. XVII-XX).

SANDHYĀ. The interval between the half-setting of the sun and the time of the appearance of indistinct stars and that between the indistinct appearance of the stars and the half-rising of the sun was called *sandhyā* (the juncture). Its effects, good and bad, were ascertained from the movements of wild animals and birds, wind, halo round the sun and the moon, mock sun or moon, *parigha* (cross bar of clouds on the solar disc), tree-shaped clouds, rainbow *Gandharva-nagara* (appearance of a town in the sky), sun's rays, *daṇḍa*[2] and dust (XXX.1-2). Thus a wild animal dreadfully crying aloud repeatedly during a *sandhyā* was taken to indicate the destruction of a village, while the same facing the sun, standing to the south of an army and crying aloud, foreboded annihilation of the army (XXX.3). A flock of wild beasts facing the sun or wind to the left of an army foretold war, while that not facing the sun and standing to the right of an army foreboded a meeting of the two armies for peace or truce (XXX.4). The birds and beasts crying with their faces turned to the sun at dawn were supposed to indicate the destruction of the country, while the same standing to the south of a town indicated its capture by enemies (XXX.5). The *daṇḍa* seen in the intermediate and cardinal directions was regarded as unfavourable to kings and the four *varṇas* respectively (XXX.16); that seen at the dawn, noon and twilight foreshadowed war and other disturbances (XXX.17). The sudden disappearance of a tree-shaped cloud moving behind a march-

1. *Supra*, Ch. V, Section 4.
2. The collection of the sun-beams, clouds and wind assuming the form of a staff was called *daṇḍa* (XXX.16).

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ing monarch foretold his death, while the same in the shape of a small tree indicated the death of the *yuvarāja* and the minister (XXX.19).[1]

The conflagration of quarters (*digdāha*), earthquake, meteor (*ulkā*), halo (*pariveṣa*) round the luminaries, rainbow (*Indradhanuṣ*), *Gandharva-nagara*, mock sun (*pratisūrya*) and hurricane (*nirghāta*) were also believed to affect the worldly life in various ways (Chs. 31-38). *Digdāha* is a lurid red glow spreading in the sky. A yellow conflagration portended disaster to the king; that having the glow of fire brought ruin to the country (XXXI.1); that which owing to great brilliance creates illumination and reveals shadow like the sun indicated great danger to the king and that having the glow of blood foretold war (XXXI.1).[2] Śrīharṣa in his *Naiṣadhīyacarita* (XII.29) mentions *digdāha* as calamitous to kings.

EARTHQUAKE. The following beliefs about the cause of an earthquake were current: 1. It is caused by the movement of the huge aquatic animals living in the ocean; 2. it is due to the rest (breath) of the elephants of the quarters tired by the weight of the earth; 3. it is occasioned by an atmospheric wind colliding with another and falling on the earth with sound; 4. it is the result of *adṛṣṭa* (*dharma* and *adharma*, i.e., to indicate good and bad results to the people engaged in meritorious and sinful deeds respectively); and 5. in the 1st, 2nd, 3rd and 4th parts of the day and night the earth is shaken by the Wind, Fire, Indra and Varuṇa respectively in order to reveal good and bad effects (XXXII.1-7; for the enumeration of various effects, cf. XXXII.8-27). A second quake taking place on the 3rd, 4th or 7th day, at the end of one month, or one or three fortnights after the previous quake was taken to be fatal to prominent rulers (XXXII.9)).

The *ulkās* or meteors were believed to be the forms of the people falling down after enjoying heavenly pleasures (XXXIII.1). It is said that the rays of the sun and the moon formed into a circle by the wind and reflected in the sky with slender clouds become haloes or *pariveṣas* with various colours and forms (XXXIV.1). These were taken to be caused

1. See also XXX.23, 25, 27-9, 30. For the time of these effects, see XXX.31.
2. See also XXXI 3-5.

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by various deities (XXXIV.2-3). The variegated rays of the sun thrown back by the wind in a cloudy sky and assuming the form of a bow are called Indra's bow, i.e., rainbow (XXXV.1). When a wind struck by another dashes against the earth from the sky with a booming sound, it is called *nirghāta* or portentous thunder (XXXVIII.1).

UTPĀTAS.[1] Anything contrary to a natural phenomenon is termed *utpāta* (XLV.1). It was believed that the misdeeds of men result in the accumulation of sins leading to natural disturbances, which are foreshadowed by the three kinds of portents, celestial, atmospheric and terrestrial (XLV.2). These *utpātas* were supposed to be caused by the gods displeased with the wrongful deeds of men, and it was considered to be the duty of a king to perform *śāntis* to avert their evil consequences (XLV.3). The unnatural behaviour on the part of planets, constellations, meteors, thunder, wind and haloes constitutes celestial portents; *Gandharva-nagara*, rainbow and the like atmospheric portents; and the moving objects becoming stationary and *vice versa* form the terrestrial portents. The terrestrial portents, it was believed, can be warded off and the atmospheric ones mitigated by *śāntis*. Some thought that the evil outcome of the celestial portents cannot be averted by any means, while others held that even this can be warded off by certain rites (XLV.4-6). It is not possible to enumerate here all the *utpātas* and their consequences mentioned by our author. A brief reference to some of them, it is hoped, will suffice for our purpose. The breaking, moving, sweating, shedding tears, falling, speaking and the like of a *liṅga*, an image or a temple were taken to be fatal to the king and the country. The falling, breaking, twisting and entanglement of the axle, wheel, yoke and flag of a cart during the procession of a god (*daivata-yāirā*) were also regarded as calamitous to the king and the country (XLV.8-9, 10-17). The presence of flames without fire and *vice versa* were taken to forebode ill to the king and his kingdom (18). The burning of water, flesh and wet objects was taken to foretell the king's death (19). The burning without fire or by lightning of a temple, house, arches, flags and the like is said to indicate

1. Cf. *Aṅgavijjā*, Ch. 53.

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foreign invasion after six months (20). The burning, moving, sounding, rushing out of the sheath, trembling or any other unnatural phenomenon of weapons foretold dreadful war (19, 23). The presence of smoke without fire, dust and darkness during the day, the disappearance of stars in cloudless night and their appearance during the day were also regarded as inauspicious (21). A good tree bearing flowers and fruits without season and the presence of smoke and flame on it were considered fatal to the king (29). The branches of a tree breaking down without any cause, its laughing or weeping (25), trees yielding flowers out of season, the flowing therefrom of milk, wine, blood, honey, oil or water (26-27) and the like were also believed to forebode various evil effects (28, 30-32). An overluxuriant growth of crops and numerous varieties of fruits and flowers on one and the same tree (34); the sesamum seeds yielding half the usual quantity of oil or no oil at all; food losing its taste (35), drought excessive rain, rain out of season (38); cold in summer and heat in winter, and the seasons not functioning properly (39); the rain of blood, flesh, bones, marrow, corn, gold, tree-barks, fruits, flowers, burning charcoal, dust, stones (without clouds), unnatural animals, milk, clarified butter, honey, curds and hot water (40-3); trees, etc., casting no shadow even when the sun shines brightly, or casting shadow in the same direction as the sun (43); the appearance of rainbow in cloudless sky (44); the rivers changing their courses, the drying up of undrying streams; the rivers carrying oil, blood and flesh and flowing upwards (46-47); the wells producing flames, smoke, foam, weeping sound, shouting, singing and talking (48); water springing up from the earth without digging and a change in its taste and smell (49); women giving birth to monstrosities or two, three, four or more children at a time and delivering long prior or posterior to the usual period; mares, she-camels, she-buffaloes, cows and she-elephants giving birth to twins (51-2); the quadrupeds mating with animals of different species, cows cohabiting with cows and oxen with oxen; a dog sucking a cow (55); a carriage moving without the yoked animal and *vice versa* (59); the sounds of songs and musical instruments heard in the sky; moving objects becoming stationary and *vice versa*; musical instruments producing unnatural sounds (60), or producing sound without being beaten and *vice versa*, or pro-

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ducing multifarious sounds (61); the ox and plough getting entangled; household utensils producing peculiar sounds (62); village-birds roaming in the forest and *vice versa*; nocturnal birds flying during day and *vice versa*; birds or beasts forming circles at the dawn and twilight, or howling in groups facing the sun; hawks weeping and jackals crying facing the sun; a pigeon or owl entering a palace; cocks crying in the evening; cuckoos warbling at the commencement of the dewy season; vultures, etc. flying in a circle from right to left in the sky; groups of birds sitting on houses, *caityas*, arches and gates; bee-hives, ant-hills and lotus growing in houses, etc.; dogs entering houses with bones and other limbs of a corpse; animals and weapons talking like human beings (65-70) and similar other unnatural phenomena were believed to bring about calamities to the king, his country and subjects.[1]

AṄGAVIDYĀ. Aṅgavidyā or the science of prognostication through the movements of bodily limbs is, as we have seen above, a very ancient science. It is mentioned in early Buddhist, Brāhmaṇical and Jaina works. A detailed treatment of this science is to be found in Puvvāyariya's Prakrit work *Aṅgavijjā-paiṇṇayam*, assignable to about the fourth century A.D. The popularity of this science in Varāhamihira's time is evident from his statement that one well-versed in it is always respected by kings and people (L.44). In prognosticating good or bad results, the prognosticators took note of the direction and the place of the query, the utterances of the questioner, any article brought at the time of the query and the movements of the limbs of the questioner and of others present there (L.1). Proper care was taken to select an auspicious direction, spot and time for the query. A garden or forest abounding in flowers, fruits, shade-giving trees, hermitages of saints, Brāhmaṇas and ponds of clean water was considered to be the most suitable spot for this purpose (L.2; for an unsuitable place see L.3-5). The east, north and north-east were considered favourable for a query, while the north-west, west, south, south-east and south-west were regarded as unfavourable. The forenoon is the best, while the dawn, night and afternoon were thought to be inauspicious

1. Also see XLV 73-80. For enumeration of natural phenomena not regarded as *utpātas*, see XLV.81 ff.

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(L.6). For the purpose of prognostication the limbs were divided into masculine, feminine and neuter genders (L.8-10). The object of the querist's thought or the nature of the query was ascertained by observing the movements of his limbs, the articles and persons present there, the articles seen, held or touched by the questioner and the way he puts his question (L.11-24). In questions relating to thefts, the thieves and whether the stolen objects would be recovered or not were also found out from the bodily movements of the questioner (L.25-28). The nature of the food taken by the querist was determined from his behaviour (L.29-35). In a query concerning pregnancy, the sex, the number of children, the time and the *nakṣatra* of the birth, abortion and the like were determined from the behaviour of a pregnant woman (L.36-43).[1] Various effects— good and bad—were also believed to accrue from the position of the pimples (*piṭaka*), ulcers (*vraṇa*), *tilakas*, moles (*maśaka*), auspicious marks (*lakṣaṇa*) and hairy circles (*āvarta*) on the different parts of the body.[2]

SIGNS OF MEN AND WOMEN. From very ancient times, Indians believed in the efficacy of bodily marks. A special class of the interpreters of bodily signs called *sāmudravid*[3] and *lakṣaṇajña* (LXVII.89) had come into existence. They are the same as the *lakkhaṇa-pāṭhakas* of the Buddhist literature. They were highly respected in society (LXVIII.40). They declared one's past as well as future by carefully observing one's height, weight, gait, compactness, vital substances (*sāra*), colour, glossiness, voice, nature, courage, previous birth, parts of the body and shadow (LXVII.1).[4] Varāhamihira

1. Utpala regards Chap. 50 on Aṅgavidyā as spurious :—*Ataḥ paraṁ kecid=aṅgavidyāṁ paṭhanti*; but as *aṅgavidyā* is included by Varāhamihira himself in the contents of a Saṁhitā (Ch. II, p. 73), there is nothing to support Utpala's view.

2. Like the previous chapter, even Ch. 51 on Piṭaka-lakṣaṇa is declared by Utpala to be spurious: *Aṭaḥ param=api kecit piṭaka-lakṣaṇaṁ paṭhanti, tad=apy=asmābhir=vyākhyāyate*: but Varāhamihira mentions it as one of the topics dealt with in a Saṁhitā (Ch. II, p. 73).

3. LXVII.1. Samudra seems to have been a standard treatise on this subject. Utpala:—*Samudre proktaṁ puruṣa-lakṣaṇaṁ sāmudraṁ tad=vetti jānāt-īti sāmudravit.*

4. Cf. *Aṅgavijjā*, Ch. 37.

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devotes two long chapters to the signs of men (LXVII) and women (LXIX) in general and one to those of the five special types of men and their attendants (LXVIII). We shall indicate here only a few general lines without going into details. It was believed that the mark of a barley-corn in the middle of a man's thumb indicates his richness and that at the bottom of the thumb, sons (LXVII.42). Broad and slender lines at the root of the thumb indicated sons and daughters. The three lines starting from the wrist and touching the forefingers were taken to ensure 100 years' life, while the shorter lines indicated proportionate reduction in age. The lines cut in the middle foretold fall from a tree (LXVII.49-50).[1] According to popular belief, the same three lines reaching the palm make one a king; one whose palm is marked with a pair of fish performs sacrifices; those with diamond-shaped lines become rich; with fish-tail figures, scholars; with lines resembling conch-shell, umbrella, palanquin, elephant, horse and lotus, kings; with the figures of a pitcher, lotus-stalk, flag and goad, rich keeping their treasure-troves underground; with those resembling a rope or *svastika* figure, wealthy; with lines resembling a wheel, sword, axe, *tomara*, *śakti*, bow and spear, army-chiefs; with those like a mortar, sacrificers; those with the figures of a crocodile, flag and store room, very wealthy; those with an altar-like figure at *Brahmatīrtha*[2] become performers of *agnihotra*; and those with triangular lines and with the figure of a quadrangular well (*vāpī*)[3] and temple, perform meritorious acts (LXVII.44-49). In the case of women, a line rising from the root of the little finger and reaching the space between the fore and middle fingers indicated the maximum span of life (*paramāyuṣ*, i.e., 120 years) and shorter lines, proportionate reduction (LXIX.13). The lines at the root of the thumb, as those of men, were taken to stand for progeny, broad ones for sons and slender ones for daughters; the lines not broken in the middle indicated long

1. For other beliefs about lines, see LXVII.44-9.

2. LXVV.48. The root of the thumb is called *Brahmatīrtha*. Utpala explains it by '*maṇi-bandhanasy-opari Brahmatīrtham=aṅguṣṭhamūle*'. Cf. *Viṣṇu-dharmasūtra* LXII.1-4; *Vasiṣṭha-dharmasūtra*, III.64-8; *Baudhāyana-dharmasūtrā*, I.5.14-8; *Yājñavalkya-smṛti*, I.19. For a detailed account of the various parts of the palm called *tīrtha*, see *HDS*, II, i, pp. 316, 652-3.

3. LXVII.49. Utpala explains *vāpī* by '*vāpi prasiddhā catur=asrā puṣkariṇī.*'

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life for the children and those broken in the middle stood for their short life (LXIX.14). The line on the palm of a woman starting from the wrist and reaching the middle finger or the one running from the heel to the foot of the toes of a man is said to lead them to royalty (LXIX.12). Most of these beliefs are still current. The popular belief that men with feline eyes are sinners and those with round and crooked ones resembling those of a deer, thieves, is also recorded (LXVII.64-5).[1] The marks of a *bhṛṅgāra*, seat, horse, elephant, chariot, *bilva* tree, sacrificial post, arrow, garland, earring, chowrie, goad, barley-corn, mountain, flag, fish, *svastika*, altar, fan, parasol and lotus on the soles or palms of women indicate the status of a queen for them (LXIX.10). Similarly, in the case of a man, deep navel, voice and courage; broad breast, forehead and mouth; raised chest, armpits, nails, nose, mouth and the nape of the neck; short genital organ, back, neck and shanks; red eye-corners, feet, hands, palate, lower lip, tongue and nails; thin teeth, fingers, finger-joints, hair, skin and nails; and long jaws, eyes, arms, nose and the space between the paps were believed to stand for kingship (LXVII.84-8).

FIVE GREAT MEN. Varāhamihira, in chapter 68 of his *Bṛhat-saṃhitā*, describes the signs of the Five Great Men (*pañca puruṣāḥ praśastāḥ*). It was believed that the Five Great Men called Haṁsa, Śaśa, Rucaka, Bhadra and Mālavya respectively are born when Jupiter, Saturn, Mars, Mercury and Venus are strong, posited in their own or exaltation signs and in the *lagna*, 4th, 7th and 10th houses.[2] We are told that a man's full strength (*sattva*) is derived from the sun and physical beauty and mental strength from the moon; that his characteristics depend not only upon the planets with which the two luminaries are conjoined but also upon the *rāśis* and their various divisions occupied by them; that upon the particular division of a *rāśi* occupied by the sun and the moon when

1. For other beliefs regarding eyes, see LXVII.64-7.

2. ताराग्रहैर्बलयुतैः स्वक्षेत्रस्वोच्चगैश्चतुष्टयगैः ।
पंच पुरुषाः प्रशस्ता जायन्ते तानहं वक्ष्ये ॥
जीवेन भवति हंसः सौरेण शशः कुजेन रुचकश्च ।
भद्रो बुधेन बलिना मालव्यो दैत्यपूज्येन ॥

Cf. *Raghuvaṁśa*, III.13. LXVIII.1-2.

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strong also depend a man's bodily substances (*dhātu*), the five elements (*mahābhūta*), the predominance of one or the other humour of the body (*prakṛti*), lustre (*dyuti*), colour (*varṇa*), the preponderance of one of the three *guṇas*, viz., *sattva*, *rajas* *tamas*, form and the like; that when these divisions of signs are occupied by the weak sun and the moon, persons of mixed characteristics are born; that good or bad courage (*sattva*), weight and growth (*gurutā*), voice, glossiness (*sneha*) and colour depend upon the excellence or defect of Mars, Mercury, Jupiter, Venus and Saturn respectively; and that persons with mixed characteristics cannot be kings (LXVIII.3-6).

MĀLAVYA. The Mālavya, we are told, has a nose resembling that of an elephant (i.e. long nose), hands touching the knees, limbs and joints full and fleshy, even and handsome body, slender waist, face 13 *aṅgulas* in height, the ear-lobes 10 *aṅgulas* apart from the chin, shining eyes, beautiful cheeks, equal and white teeth and the lower lip not too fleshy. As his name indicates, he is described as the prospective ruler of the Mālavas, Bharukaccha, Lāṭa, Sindhu and the Pāriyātra mountain; his age is fixed at 70 years (LXVIII.10-12).

BHADRA. Bhadra is said to have fleshy, even and long arms, cheeks covered with soft, short and dense hair, fine skin, strong semen, broad fleshy breast, excessive courage, gait like that of an elephant, beautiful temples and forehead, well-proportioned belly, feet and hands with the lustre of the interior of a lotus, beautiful nose, equal and well-knit brows, smell like that of the earth sprinkled with first rain, cassia leaf, saffron, ichor of an elephant or aloe, dark and curly hair springing one from each pore, the genital organ hidden like that of a horse or elephant, tiger-like face and marks of a plough, *muśala*, mace, sword, conch-shell, wheel, elephant, crocodile, lotus and chariot. His height is said to be equal to his outstretched arms. His weight is fixed at one *bhāra* and the span of life at eighty years. If he is 84 *aṅgulas* tall and weighs a *bhāra*, he becomes the ruler of Madhyadeśa, and if 105 *aṅgulas*, the lord of the entire earth (LXVIII.13-19).

ŚAŚA. Śaśa, who is said to be a border-chief (*prātyantika*) or vassal (*māṇḍalika*) and to die at the age of 70, has slightly projecting and thin teeth, thin nails, large eye-balls, fleshy cheeks, too much marrow and slender waist, figures of a shield,

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sword, lute, couch, garland, tabor and spike going upwards on the sole or palm, and is not very stout (LXVIII.20-23).

HAMSA. Haṁsa has red face shining like gold, plump cheeks, raised nose, round head, eyes like honey, red nails and marks of garland, goad, conch, a pair of fish, sacrificial implements, pitcher and lotus on the sole or palm; he weighs 1600 *palas*, rules over Khaśas, Śūrasenas, Gandhāra and Antarvedī, and dies in a forest at the age of ninety (LXVIII. 24-6).

RUCAKA. Rucaka, described as the lord of the Vindhyas, Sahyagiri and Ujjayinī and meeting his death by a weapon or fire at the age of seventy, has beautiful brows and hair, reddish dark complexion, conch-like neck, oblong face, rich blood and flesh, lean knees and shanks and marks resembling parts of a cot, lute, diamond, *śakti* (spear), Indra and trident on his palm or sole; the girth of his waist is equal to the length of the face; he weighs 1000 *palas* LXVIII.27-30).

A few remarks are necessary before leaving this topic. Firstly, regarding the height of the Great Men. We are told that the height and girth of the Haṁsa is 96 *angulas*, the height and girth of the Śaśa, Rucaka, Bhadra and Mālavya being obtained by adding three *aṅgulas* successively. Thus the measure for Śaśa should be 99 *aṅgulas*; for Rucaka, 102; for Bhadra, 105 and for Mālavya, 108 (LXVIII.7, 25).[1] It will be remembered here that the height of the best and the middle-most divine images corresponds to that of the Mālavya and Haṁsa respectively. But these height and girth measures are contradicted by subsequent verses of the same chapter. Bhadra, for instance, is said to measure 84 or 105 *aṅgulas*

1. We shall naturally be asked to explain how the height and girth of the different classes of men can be the same. As pointed out by Utpala, the equality of the height and girth was obtained by measuring the latter from the tip of the middle finger of one hand to that of the other, both arms being fully outstretched (*prasārita-bhuja-dvayasya pramāṇam=ity=arthaḥ*). This is one of the most important *Mahāpuruṣa-lakṣaṇas* and called *Nyagrodha-parimaṇḍala* type in the following couplet of Parāśara citi by Utpala : तथा च पराशरः ।

उच्छ्रायः परिणाहस्तु यस्य तुल्यं शरीरिणिः ।
स नरः पार्थिवः ज्ञेयो न्यग्रोधपरिमण्डलः ॥

Varāhamihira says the same thing while describing the characteristics of the Bhadra (*bhuja-yugala-pramitaḥ samucchrayo=sya*, LXVIII.13).

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(LXVIII.18); Śaśa, 92 aṅgulas (LXVIII.21); and Rucaka, 100 aṅgulas (LXVIII.29). Secondly, many of the above characteristics agree with those of a Buddha. But while according to the Buddhists a personage possessing thirty-two *lakṣaṇas* and 82 *anuvyañjanas* becomes either a *cakravartin* or a Buddha, according to Brāhmaṇical tradition all the Five Great Men turn kings.

ATTENDANTS OF GREAT MEN. The men with mixed characteristics who, as we have seen above, cannot become kings, are also five in number, viz., Vāmanaka,[1] Jaghanya, Kubja, Maṇḍalaka and Sācin. They become attendants of Bhadra, Mālavya, Haṁsa, Rucaka and Śaśa respectively (LXVIII.31).

VĀMANAKA. Vāmanaka is said to be of full-grown limbs, hunch-backed, slightly undeveloped in thighs, waist and between the armpits, and a devotee of Vāsudeva (LXVIII.32). It is interesting to find the Vāmana (dwarf) holding a parasol over the king's head on the Chatra type coins of Candragupta II,[1a] the Elephant-Rider,[2] the Elephant-Rider Lion-Slayer[3] and Chatra[4] types of Kumāragupta, and on the Chatra type of Skandagupta.[5] It seems that the Gupta mint-masters intended to portray their emperors as the Bhadra Mahāpuruṣa[6] who is said to be the king of Madhyadeśa and a universal ruler (*sakalāvaninātha*ḥ), a description which suits well the Gupta rulers. It is quite likely, therefore, that the tradition about the five types of men and their attendants recorded by our author was current long prior to his time and that the art convention of depicting the umbrella-bearer as a dwarf originated in this tradition.

JAGHANYA. Jaghanya, the attendant of Mālavya, has crescent-like ears, good joints, thick semen, rough skin, thick

1. Vāmana and Kubja are mentioned as royal attendants by Kauṭilya (I.21.1) also.
1a. A. S. Altekar, *Coinage of the Gupta Empire*, Pl. VIII.6-15.
2. *Ibid.*, XII.14-15.
3. *Ibid.*, XIII.1-2.
4. *Ibid.*, XIII.15.
5. *Ibid.*, XIV.14.
6. Cf. R. C. Kar, A New Interpretation of the Gupta Chhatra and Battle-axe coin-types, *JNSI*, VI (1944), pp. 27-33; The Vāmana—Attendant on Gupta Coins, *IHQ*, XXIV (1947), pp. 113-22. For an adverse opinion, see Altekar in *JNSI*, VI, pp. 32-3.

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fingers and marks of a sword, *śakti*, noose and *paraśvadha* on his breast, feet and hands, and is copper-coloured (LXVIII. 33-4).

KUBJA. Kubja, who attends on Haṁsa, is said to be free from defects in the lower part of his body but is slightly slender and bent in the upper part (LXVIII.35-6).

MAṆḌALAKA. Maṇḍalaka, the attendant of Rucaka, appears old and his hairs are hard and rough (LXVIII.37-8).

SĀCIN. The body of Sācin, the attendant of Śaśa, is said to be very ugly (LXVIII.39).

WEARING NEW CLOTHES. It was believed that a new cloth put on in one or other *nakṣatra* yields good or evil results (LXX.1-7). The four corners of a cloth, couch, seat or foot-wear, it is stated, are inhabited by gods; the two middle parts of the broad sides, by men; and the remaining portions by devils (LXX-9).[1] When a cloth is smeared with collyrium or dung or mud and the like, is cut, burnt or torn in the portions allotted to devils, it bodes disease or death to the wearer; in those allotted to men, power and birth of sons; and of gods, prosperity (LXX.10-11, 12-13). The popularity of these beliefs is indicated by the fact that they are mentioned in the Jaina *Uttarādhyayana-sūtra*[2] also.

Particular *nakṣatras*, *tithis*, *karaṇas* and week-days were considered especially auspicious and are, therefore, recommended for different kinds of acts (XCVII-XC, X, CIII.61-3). The *nakṣatra* and the position of a planet in the different divisions of a *rāśi* at the time of one's birth were believed to mould one's life, physical and mental constitution, habits, likings, etc. (Chs. C, CIII).

ŚAKUNAS. As many as eleven chapters of our work (LXXXV-XCV) are devoted to the *śākunas* or indications of future events in the life of a human being derived from the

1. The following chart from Utpala explains this division :—

Devāḥ	Rākṣasāḥ	Devāḥ
Narāḥ	Rākṣasāḥ	Narāḥ
Devāḥ	Rākṣasāḥ	Devāḥ

2. J. C. Jain, *Life in Ancient India as Depicted in the Jain Canons*, p.237.

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movements of birds and animals, especially during a journey. The philosophy behind the belief in the efficacy of omens is that an omen indicates the fruition of one's good and bad deeds done in a previous life.[1] Thus the events revealed by birds and animals were regarded as the outcome of a man's deeds in a previous life, and omens had only an indicatory value. During the three-hour periods from sunrise to sunrise, different directions were called *mukta-sūryā*, *prāpta-sūryā* and *eṣyat-sūryā*; these were also known as *aṅgāriṇī* (sparkling), *dīptā* (burning) and *dhūminī* (smoking) respectively; the effects of an omen occurring in these quarters were taken to have been already exhausted, to be experienced on the same day and pending up respectively; the remaining quarters were styled *śānta* (tranquil, LXXXV.12-13). An omen occurring nearby and at a lower level bore fruit shortly, whereas that occurring far off and at a higher level in distant future. The growing or decaying nature of the object whereon an omen is perched was also taken into consideration. The effects of an evil omen on a growing object like a tree, for instance, would be quite negligible, but that of a good omen, very great; on the contrary, an evil omen on a decaying object would be very effective (LXXXV.14). An omen appearing in malefic *muhūrtas*, *tithis*, stars, when a strong opposite wind blows, and facing the sun was regarded as blasted by divine agency (*deva-dīpta*), whereas it was considered to be blasted by action (*kriyā-dīpta*) if it had untoward gait (running towards lightning, meteor, sun and wind), position (sitting or standing in an inauspicious place), disposition, voice and bodily movements. Likewise, an omen contrary to the above would be regarded as *śānta* (tranquil, LXXXV.15-6). The *śānta* and *dīpta* omens were believed to bode good and evil respectively. The diurnal and nocturnal creatures moving during their own time on mountains (or lofty spots) and water respectively are said to be strong. Of hermaphrodites, female and male creatures, each is stronger than the preceding ones (LXXXV.18). When two omens are seen simultaneously, the one that has superior speed, species, power, position, jovial mood, courage and voice and

1. अन्यजन्मान्तरकृतं कर्म पुंसां शुभाशुभम्।
यत्तस्य शकुनः पाकं निवेदयति गच्छताम् ॥ LXXXV.5.

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is in its own place is strong, whereas one deficient in these respects is weak (LXXXV.19). Rural creatures found in forests and *vice versa*, and diurnal ones at night and *vice versa*, were not taken into account, Similar is the case with the creatures that are in pair, diseased, afraid, desirous for fight or meat and separated by a river or intoxicated (LXXXV.24-5). The movements of creatures in their respective mating seasons were also not taken into consideration (LXXXV.26-8). The omens regarded as auspicious in different quarters and occurring to a traveller's left or right, in front or behind are mentioned (LXXXV.20-23 37-8, 43-7). The space intervening between the eight directions is divided into thirty-two parts and people following various professions are assigned to them. An omen standing and crying in a particular direction and at a particular place, when a person is standing still or going on a journey, is taken to foreshadow his meeting with the individual belonging to that place (LXXXV.29-35, 68 ff.). A bird crying in a tranquil direction was believed to foreshadow the arrival of a person or gain, whereas that crying in a blasted direction indicated meeting with an undesirable person or calamity.[1] The rules for the interpretation of omens at the time of an act, meeting, battle, seeing a king, entering his palace or forest, dipping into a river and so on are summarised in LXXXV.47 ff. The blasted and tranquil sounds of different birds and animals and their supposed effects are described in Chs. LXXXVII & LXXXIX. While interpreting an omen, the relative strength of the particular quarter, place, movements, sound, weekday, star, *muhūrta*, *horā*, *karaṇa*, the Ascendant, its division, its being moveable, fixed or dual sign were also taken into consideration.[2] The results accruing from the movements of dogs, wild animals, cows, horses, elephants and crows are also recorded.[3]

A noteworthy feature of Indian life through the ages is the persistency of beliefs and superstitions, and omens are no exception. The idea, for example, that a dog entering a house with a dry bone into its mouth,[4] or barking facing the sun

1. Ch. LXXXVI.
2. Ch. XCV.
3. Chs. LXXXVIII, XC-XCIV.
4. *Śuṣkeṇa c-āsthnā gṛhītena mṛtyuḥ; praviśati tu gṛhaṁ saśuṣk-āsthi-vaktre pradhānasya tasmin vadhaḥ*; LXXXVIII.1.

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(LXXX-VIII.2) or during the night (LXXXVIII.5) bodes evil, still persists. The belief that crows assembling in a town or village without any apparent reason foreshadow evil (XCIV.8) is still preserved. Similarly, sneezing was, as now, regarded as inauspicious (XCIV.60).

Our author frequently alludes to the objects the sight of which was regarded as auspicious at the commencement of a journey.[1] According to the *Yogayātrā* (XIII.10-2), they included such articles as white mustard seeds, mirror, milk, collyrium,[2] jar filled with flesh, head-gear (*uṣṇīṣa*), *bhṛṅgāra*, *vardhamāna* symbol, conveyance, lute, parasol, curds, honey, *ghee*, *rocanā*, flag, gold, lotus, throne, conch-shell, white bull, flowers, cloths, fish, kindled fire, fruits, *akṣata*, sugarcane, edibles, clay, goad, *cāmara*, weapons and precious stones. The sight of a virgin, a nicely clad Brāhmaṇa, a prostitute, travellers and elephants was also regarded as auspicious. If these objects were not seen without any effort, they were to be brought and shown to a traveller or a marching king (*YY*, XIII.13; *TY*, IX.3).

AGNI-LAKSANA. In fire-worship, the priest was invariably associated with the *sāṁvatsara*.[3] While the former offered oblations into fire, the latter interpreted omens. The fire that is fragrant, glossy, thick and full of flames, has the shape of auspicious objects such as a banner, pitcher, horse, elephant or mountain, is hued like gold, *aśoka*, *kuraṇṭaka* and lotus flowers and beryl or blue lily, produces the sound of a chariot, ocean, cloud, elephant or drums, and smells like elephant's ichor, earth, lotus, fried rice, *ghee* or honey was regarded as auspicious (XLII.31, 33-6). It is said that if at the conclusion of fire-worship, the fire blazes forth of its own accord, is glossy and its flames turn to the right (*pradakṣiṇa-śikha*), it indicates victory to the king (XLII.32).[4]

1. *Prāsthānika-maṅgala* XLII.12; LVIII.1.

2. The printed ed. of *YY*, XIII.10 reads '*Siddhārthak-ādarśa-prayojanāni*' which gives no sense. We have therefore preferred '*Siddhārthak-ādarśa-payo=ñjanāni*' given by Utpala on LVIII.1.

3. XXII.30; XLIII.13; XLVII.78, 80.

4. Cf. *Raghuvaṁśa*, IV.25.

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Chapter VII

FINE ARTS

I

RESIDENTIAL ARCHITECTURE

The art of building had reached a high pitch of development in the Gupta age. Two distinctive styles of architecture, to wit, Nāgara and Drāviḍa, made their appearance precisely during this period. Though several specimens of temple architecture of the period under review are preserved, we know very little, if anything, about residential architecture. As older works dealing with residential architecture are no more extant, great interest attaches to the Vāstuvidyā section of the *Bṛhatsaṁhitā* (Ch. 52) contents whereof are summarised below.

VĀSTU. The word '*vāstu*' literally means 'a place of residence'. In Sanskrit lexicons, it denotes a house-site and a house proper.[1] In the *Arthaśāstra* , it has a wider connotation covering a building-site, gardens, *setubandha*, a tank and a base.[2] Vātsyāyana (I.3.16) regards Vāstuvidyā as one of the sixty-four arts and his commentator Yaśodhara states that this science is useful in constructing a house. Varāhamihira uses '*vāstu*' in the strictly limited sense of a residential building (LII.1, 11, 15, 22, 31, 37; LV.9; CVI.6). In later times the connotation of *vāstu* was extended so as to include not only a house-site and a house, but also furniture, conveyances and sculpture.[3]

OVERALL MEASUREMENTS. Varāhamihira first gives overall measurements for five kinds of houses meant for a king, army-chief (*senāpati*), ministers (*saciva*), queens

1. Cf. *Aṣṭādhyāyī* IV.3.73 ; Agrawala, *India as Known to Pāṇini*, p. 337 ; *Brahmajālasutta* (Engl. transl. by Rhys Davids), pp. 16-18, fn., *Āśvalāyana-gṛhyasūtra*, II.7.1 ; *Amara*, II.3.19 (a building-site) ; *Halāyudha*, v. 250 (*vāstu* in masculine denotes a house-site and in neuter a house proper); P.K. Acharya, *Dictionary of Indian Architecture*, p. 548.

2. *Gṛhaṁ kṣetraṁ=ārāmas=setubandhas=taṭākam=ādhāro vā vāstu.*

3. Cf. *Mānasāra*, III.2-3 ; *Agni-purāṇa*, CVI.1; P.K. Acharya, *Dictionary*, pp. 545-46.

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(*mahiṣī*), crown-prince (*yuvarāja*) and his younger brothers, feudatory chiefs (*sāmanta*), state officials (*rājapuruṣa*), chamberlain (*kañcukin*), royal courtesans (*veśyā*) and artistes (*kalājña*), envoys (*dūta*), astrologers, priests and physicians, persons belonging to the four primary castes and sub-castes, treasury and pleasure-house (*rati-bhavana*).

The five houses of a king measured 108, 100, 92, 84 and 76 cubits in breadth, the length being greater than the breadth by a quarter (4).[1] The same measures are found prescribed in the *Matsya-purāṇa* (CCLIV.14-16). An army-chief had five houses, 64, 58, 52, 46 and 40 cubits broad, their length being 1/6th more than the breadth (5).[2] The best house of a minister measured 60 cubits in width, while the remaining four were less by 4 cubits each in a descending order, the length exceeding the breadth by 1/8th (6. Cf. *Matsya*, CCLIV. 20-21). For a crown-prince are prescribed five houses, 80, 74, 68, 62 and 56 cubits broad, the length being 1/3rd more than their width. The dimensions of the houses of his younger brothers are half of those of the *yuvarāja* (7. Cf. *Matsya*, CCLIV. 17-8). The measures for the houses of feudatory chiefs and high state officials (*pravara-rājapuruṣa*) are equal to the difference between the houses meant for the king and his minister. Thus the best house of this class measures 48 *hastas* × 67 *hastas*, 12 *aṅgulas*. The difference between the houses of a king and his crown-prince gives the dimensions for the houses of chamberlains, royal courtezans and artistes. The largest house of this group should thus be 28 *h.* × 28 *h.* 8 *a.* (8).[3] Of the five houses meant for the royal astrologer, priest and physician, the first measured 40 cubits in breadth, the width of the remaining four houses decreasing by 4 cubits each in a descending order and their length being greater than the breadth by 1/6th (10). The residences of the officer-in-charge of work-

1. Figures in brackets refer to the serial number of verses in Ch. LII.

2. Cf. *Matsya*, CCLIV.18-9.

3. According to the *Matsya-purāṇa* (CCLIV. 21-2), however, the houses of feudatory chiefs and *amātyas* should measure 48, 44, 40, 36 and 32 cubits in width, the length exceeding the breadth by 1/4th. It also gives somewhat different proportions for the houses of chamberlains, artistes and prostitutes, the best structure of this class measuring 28 *h.* × 56 *h.* (CCLIV.23-4).

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shops (*karmāntādhyakṣa*) and of the envoys corresponded to the difference between those prescribed for the crown-prince and the minister (*Yuvarāja-mantri-vivaraṁ karmānt-ādhyakṣa-dūtānrām*, 9). According to another reading (*mantri-sāmanta-vivaram*) given by Utpala, they equalled the difference between the houses of ministers and feudatory chiefs, thus giving 12 cubits for the width of the best structure of this group whereas we do not get any satisfactory measure for length; consequently as pointed out by Utpala himself, this reading was rejected by reputed architects (*etad = vṛddha-sthapatibhir = n-ādṛtam = atimānālpatvād = iti*).[1] The difference between the measures of the residences of a king and his commander gives us the dimensions of treasure-house and pleasure-house as also for the houses meant for superintendents of state departments (*Nṛpa-senāpati-gṛhayor = antara-mānena koṣa-rati-bhavane*, 14; *Adhyakṣ-ādhikṛtānāṁ sarveṣāṁ koṣa-rati-tulyam*, 9).[2] The best structure of this class is thus 44 *h.* × 60 *h.* 8 *a.* The antiquity of this architectural tradition is vouchsafed by the *Kauṭilīya* according to which the dimensions of *vāsa-gṛha* should be the same as those of *koṣa-gṛha* (*koṣa-gṛha-vidhānena vāsa-gṛham*, I.20). It was often placed on the upper floor of a house and used as the bed-chamber of the couple. In Bāṇa's *Harṣacarita*[3] and *Kādambarī*[4] is to be found a beautiful description of *vāsa-gṛha*, and in an Ajanta fresco we see a newly married couple celebrating their honeymoon.[5]

The five houses of the members of the four *varṇas* measure 32, 28, 24, 20 and 16 cubits in width. A Brāhmaṇa could have all the five houses; a Kṣatriya, last four; a Vaiśya, last three; and a Śūdra, last two. The length of the houses of the four *varṇas* exceeds the breadth by 1/10th, 1/8th, 1/6th[6] and 1/4th in a descending order. People from the lowest sections of society were to have houses with smaller dimensions (12-13).

1. *Matsya-purāṇa* (CCLIV.24-5) also prescribes 12 *h.* for the width of the best structure of this group, the remaining four diminishing from each other by $\frac{1}{2}$ cubit and the length exceeding by $\frac{1}{4}$th.

2. Cf. *Matsya*, CCLIV.30-31.

3. V.S. Agrawala, *Harṣacarita, A Cultural Study* (Hindi), pp. 64, 85, 95, 208.

4. V. S. Agrawala, *Kādambarī, A Study* (Hindi), pp. 74, 81.

5. *Ajanta Paintings* (Lalit Kala Academy), 1956, Pl. XX.

6. But cf. *Matya*, CCLIV.28-30, where the length of a Vaiśya's house is said to exceed the width by 1/3rd.

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Houses with various measures are prescribed for state officials in accordance with their caste. According to a general rule laid down for the purpose, a royal officer was to have houses with dimensions equal to the difference between those of the houses of an army-chief and those prescribed for the caste to which he belonged (14. Cf. *Matsya*, CCLIV.31). Thus the first house of a Brāhmaṇa officer would measure 32 *h.* by 35 *h.* As for the houses of a Kṣatriya officer, measures could be obtained by subtracting the dimensions prescribed for his caste from those of the 2nd, 3rd, 4th and 5th houses of an army-chief; for those of a Vaiśya, by subtracting from the 3rd, 4th and 5th; and for those of a Śūdra, by subtracting from the 4th and 5th.[1]

Persons of mixed castes like Pāraśava could have houses with dimensions equal to a half of those prescribed for both of his parents put together (15). Thus the first house of a Pāraśava would be 26 *h.* wide. According to the *Matsya-purāṇa*, however, a member of the mixed castes should have houses equal in dimensions to those of his father's (*Antara-prabhavāṇāṁ ca svapitur=gṛham=iṣyate*, CCLIV.32).

There was no fixed rule as to the size of the cattle-sheds, residences of ascetics, granary, armoury, a structure for keeping sacrificial fire ablaze and pleasure-house (16). There is a discrepancy between this verse and LII.14 according to which the pleasure-house (*rati-bhavana*) should be equal in dimensions to the difference between the houses of a monarch and his commander, indicating that deviations from the prescribed dimensions were occasionally allowed.

Besides the proportionate length of individual houses noticed above, it is laid down that the length of a structure consisting of a single room (*śālā*) should be twice its breadth. Normally, the height of a building was required to be equal to

1. Cf. Utpala on LII.14 :— अत्र यदा ब्राह्मणो राजपुरुषो भवति तदा ब्राह्मणवास्तुमानं सेनापतिवास्तुमानादपास्य यदवशिष्यते तेन मानेन गृहपञ्चकं कार्यम् । एवं क्षत्रियादीनां विज्ञेयम् । किन्तु सेनापतिगृहस्य द्वितीयस्य क्षत्रियवास्तुमानेन सहान्तरं कृत्वा शेषं क्षत्रियराजपुरुषस्य प्रधानगृहम् । एवं तृतीयस्य द्वितीयेन चतुर्थस्य तृतीयेन पञ्चमस्य चतुर्थेनेति । एवं तृतीयेन सेनापतिगृहेण सहान्तरं वैश्यस्य प्रधानगृहं चतुर्थेन शूद्रस्येति ।

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its width (11). Thus the first royal house should be 108 *h.* high; but a height of more than 100 *h.* was not approved of by writers on architecture (*Ṅ-ecchanti śāstrakārā hasta-śatād = ucchritaṁ parataḥ*, 16) So far about overall measurements.

PROPORTIONATE MEASUREMENTS—ŚĀLĀ AND ALINDA. Proportionate measurements for different parts of a structure are laid down in detail. A peculiar method of obtaining measures for the hall (*śālā*) and the balcony (*alinda*)[1] in all the houses except those of the four castes was to add 70 to their width and place the sum total separately at two places and then to divide one by 35 and the other by 14. The two quotients give measures for the *śālā* and *alinda* respectively (17). As for the five houses of the four castes, the *śālā* in a descending order measured 4 *h.* 17 *a.*, 4 *h.* 3 *a.*, 3 *h.* 15 *a.*, 3*h.* 13 *a.* and 3 *h.* 4 *a.* Measures for the *alinda* are 3 *h.* 19 *a.*, 3 *h.* 8 *a.*, 2 *h.* 20 *a.*, 2 *h.* 18 *a.* and 2 *h.* 3 *a.*[2]

VĪTHIKĀ. Outside the house was to be made a pathway (*vīthikā*), its width being 1/3rd of the *śālā* (*Śālā-tribhāga-tulyā kartavyā vīthikā bahir = bhavanāt*, 20). The *Viśvakarma-prakāśikā* lays down the same rule in almost identical words, evidently borrowed from the *Bṛhat-saṁhitā* (*Śālā-tribhāga-tulyā*

1. In lexicons '*alinda*' denotes a room in the outer gateway of a building for which older words were '*praghāṇa*' and '*praghaṇa*', cf. Pāṇini, III.3.79; *Amara*, II.2.12. According to some, the word '*alinda*' originated in the Gupta period or a little earlier, cf. Agrawala, *Harṣacarita, A study*, p. 204. But Utpala takes '*alinda*' to mean a lattice-covered path beyond the wall of a hall and facing the courtyard: अलिन्दशब्देन शालाभित्तेर्बाह्या या गमनिका जालकावृताङ्गणसम्मुखा क्रियते सा ज्ञेयेति.

2. हस्तद्वात्रिंशादिषु चतुश्चतुस्त्रिंत्रिकत्रिकाः शालाः ।
सप्तदशत्रितयतिथित्रयोदशकृताङ्गुलाभ्यधिका : ॥
त्रित्रिद्वित्रिद्विसमाः क्षयक्रमादङ्गुलानि चैतेषाम् ।
व्येका विंशतिरष्टौ विंशतिरष्टादश त्रितयम् ॥ LII.18-19.

Utpala interprets '*kṣaya-kramāt*' as 'in accordance with the descending order of the houses the *aṅgulas* increase'. According to others,' as the *aṅgulas* increase, the *hastas* decrease in number'. Utpala tells us that this interpretation was rejected by expert architects:—एवमेतेषां हस्तानां क्षयक्रमाद् गृहक्रमेणैतान्यङ्गुलान्यधिकानि कार्याणि . . . अन्ये एवं व्याचक्षते । यथा एतान्यङ्गुलानि क्षयो हानिरेषां हस्तानां कार्यः । एतद् वृद्धस्थपतिभिर्नाङ्गीकृतम् ।

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ca kartavyā vīthikā bahiḥ). The location of the *vīthikā* formed a basis of the classification of dwellings. Thus a structure was called *Soṣṇīṣa*, *Sāyāśraya*,[1] *Sāvaṣṭambha* and *Susthita* according as there was a pathway to its east, west, south or north, and on all sides respectively (20-21).[2] According to the *Śukranīti* (I.267), the *vīthi* was placed behind the house and used as a passage for sewage (*Gṛha-pṛṣṭhe sadā vīthir = mala-nirharaṇa-sthalam*).

BHŪMIS. In a house consisting of more than one storey, the height of the ground-floor should be 1/16th of the width with an addition of four cubits, and the height of each of the following upper storeys (*bhūmi*) should be diminished by 1/12th of the preceding one (22).

WALLS. Much stress was laid on the strength and stability of a house, and it is laid down that in thickness walls should be equal to a 16th of the total breadth (23).[3] Thus the walls of the first royal house would be 6 *h*. 18 *a*. thick. According to the *Śukranīti*, however, the thickness of the wall should be equal to a 6th of the width of a room (*Koṣṭha-vistāra-saṣṭh-āṁśa-sthūla sā ca prakīrtitā*, I.229).

DOOR-WAY. The breadth of the houses of the king, army-chief and others (except those of the four castes) increased by an 11th and with an addition of 70, when turned into *aṅgulas* gives the height of the door-way, and a half of that its width (24). For the four-caste houses, the width of the door-way could be obtained by adding 18 digits to a 5th of their breadth taken as *aṅgulas* and then again adding to it 1/8th of itself; three times this would be its height (25).[4] The thickness of the two side-frames (*śākhā*) of a door is as many *aṅgulas* as its altitude numbers in cubits; $1\frac{1}{2}$ that measure gives the thickness of the threshold and the upper block (*udumbara*, 26).[5] 1/80th of seven times the height gives the breadth of all the four pieces (27).

1. *Śreyaścchraya* of *Matsya-purāṇa*, CCLIV 37.
2. Cf. *Viśvakarma-prakāśa*, II.154-155.
3. Cf. *Viśvakarma-prakāśa*, II.161.
4. Cf. *Matsya*, CCLIV.42-3, which gives no clear sense:—

गृहव्यासस्य पञ्चाशदष्टादशभिरङ्गुलैः ।
सयुतो द्वारविष्कम्भो द्विगुणश्चोच्छ्रयो भवेत् ॥

5. Utpala informs us that the threshold and upper block were commonly known as '*dehali*' and '*niṭāla*' respectively—*Udumbarau śākhayor = upary =*

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The door was normally placed in the middle of the front wall and faced a cardinal point and never an intermediate direction (LV.10). This is also clear from the fact that in the plans of both 81 and 64 squares architects are often asked to place the door in the central plots of outer bands and not on corners (69-73). With a view to prevent obstructions (*vedha*) to light and air and to provide hygienic conditions it is laid down that the door should not face a road, tree, corner, well, pillar, mud, god (temple), a Brāhmaṇa's house and a water-sluice.[1] But in view of the difficulty of avoiding all these obstructions in densely populated towns and villages, it is recommended that the minimum distance between the door and the obstructing object should be twice the height of the door (74-76). Further, the door should not be such as opens or closes by itself, is larger or smaller than the prescribed dimensions, one above another, too narrow or broad, bent, pressed hard by the upper block, bent inward or outward, and stands in a haphazard direction. All these defects were believed to augur evil to the landlord or family members (77-79).[2] The main door (*mūla-dvāra*) was embellished by auspicious decorative designs like a pitcher, a *bilva* fruit, foliage and boughs and the Pramathas.[3] It was seen that in beauty the main door is not outdone by side doors (80). According to the *Matsya-purāṇa* (CCLV.18-19), the main door was to be wor-

adhaḥ sthite kāṣṭhe dehalī-niṭālākhye. T. Bhattacharya points out that the natural depth of the lintel ought to be the same as that of the jamb, otherwise the frame cannot be well joined and suggests that the word '*sārddham*' should be taken to mean 'with' and not $1\frac{1}{2}$ as done by Utpala, vide his *Study on Vāstuvidyā*, p. 237.

1. The *Matsya-purāṇa* (CCLV.10-14) list of *vedhas* also includes a peg, a house, a house of an outcaste, and refuge. Some of these rules appear to have been meant to secure privacy and peace. The *Gobhila-gṛhyasūtra*, IV.7.17-9, speaks of a back door with disapproval and states that the main door of a house should not face that of another house and that the door should be such that through it the inmates or valuables of the house are not visible to outsiders —*Na pratyag=dvāraṁ kurvīta, anudvāraṁ ca gṛha-dvāram, yatlā na saṁloki syāt*.

2. Cf. *Matsya-purāṇa*, CCLV.15-18.

3. Utpala adds figures of lions, tigers, swans and birds like *jīvajīvaka*.

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shipped daily by offerings, *akṣata* and water. The practice of drawing auspicious figures on door-jambs is even now followed.

COLUMNS. We also get proportionate dimensions and mouldings of the column. Its width at the bottom should be equal to 1/80th part of nine times its height, and the same decreased by 1/10th is its width at the top (27).[1] These measures are meant for the columns supporting the upper storey or roof and not for free-standing columns to which also they can be applied with some minor changes. We are asked to divide the entire height of a pillar into nine parts, the pedestal (*Vahana*) being the lowest. The second part immediately above the *Vahana* was *Ghaṭa*, evidently because it was shaped like a pitcher.[2] The eighth part at the top resembled a lotus flower and was consequently known as *Padma* or *Kamala*, the ninth part immediately above the *Padma* being called *Uttaroṣṭha* or the Upper Lip.[3] Between the two lower and two upper parts was the shaft which occupied five of the nine divisions. Utpala informs us that according to another interpretation, *Uttaroṣṭha* formed the eighth part and *Padma* the ninth. He also tells us that *Uttaroṣṭha* was carved with various decorative figures (*rūpaka-viśeṣa*) and that the lower parts were sometimes worked in gold.[4] Pillars were given various names

1. Cf. *Matsya*, CCLV.1-2, according to which column should be in thickness equal to an 80th part of seven times the height of a storey and the thickness at the top should be an 80th part of nine times its height—
कृत्वा स्वभवनोच्छ्रायं सदा सप्तगुणं बुधैः । अशीत्यंशः पृथुत्वे स्यादग्रे नवगुणे सति ॥

2. In some early inscriptions pillar-base is called *Kumbhaka*, cf. *Luders List*, Nos. 3. 62, 125 q, 125 r, 125 s, 125 t, 125 u, 126.

3. स्तम्भं विभज्य नवधा वहनं भागो घटोऽस्य भागोऽन्यः ।
पद्मं तथोत्तरोष्ठं कुर्याद् भागेन भागेन ॥ LII. 29.

4. Cf. Utpala—उह्यते धार्यते भूमौ येन स्तम्भभागेन तद्वहनम् । अस्य भागस्योपर्यन्यो यो द्वितीयो भागः स घटस्ततोऽन्यः पद्मं कमलं पद्माकारमेव कार्यम् । तथा तेनैव प्रकारेण पद्मस्योपरि यो नवमो भागः स उत्तरोष्ठः कार्यः । उत्तरोष्ठो यत्र शोभार्थं रूपकविशेषाः क्रियन्ते । एवं पद्मं भागेनोत्तरोष्ठं च भागेन कार्यम् । केचिदुत्तरोष्ठमष्टमभागे नवमे कमलमितीच्छन्ति । एतदुक्तं भवति । नवधा विभक्ते स्तम्भेऽधरोर्ध्वभागचतुष्केऽधो हिरण्यादीनि कार्याणि शेषं भागपञ्चकं समचतुरस्रादिकं कार्यम् ।

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in accordance with the shape of the shaft. Thus a column was known as *Rucaka*, *Vajra*, *Dvivajraka*, *Pralīnaka* and *Vṛtta* according as its shaft was rectangular, octagonal, 16-sided, 32-sided and circular (28. Cf. *Matsya*, CCLV.2-3). The *Matsya-purāṇa* calls these five columns *mahāstambhas* and informs us that they were decorated with the designs of lotuses, creepers, pitchers, foliage, mirrors, etc. (*Ete pañca mahāstambhāḥ praśastāḥ sarva-vāstuṣu, Padma-vallī-latā-kumbha-patra-darpaṇa-rūpitāḥ*, CCLV.4).

Above these columns were horizontally placed the architraves known as *Bhāratulās* whose number depended on that of the columns. Their thickness was the same as that of the pillars. Above these were placed cross-beams called *Tulopatulā* the thickness of which is lessened by a quarter. According to another interpretation, cross-beams were known as *Upatulā* and above them were placed minor beams or rafters called *Tulopatulā* and their thickness was lessened by a quarter of the immediately preceding one.[1] The *Matsya-purāṇa* (CCLV.5-6) knows only two beams, *Tulā* and *Upatulā*, probably standing for the *Bhāratulā* and *Tulopatulā* of our work, the *Upatulā* diminishing in width by 1/3rd or 1/4th of the thickness of the pillar.[2] This shows the correctness of the former interpretation

There is, however, much controversy about the interpretation of these verses. Kern characterised them as 'exceedingly vague'. According to Dr. P.K. Acharya, eight components of a pillar are referred to here, to wit, 1. *Vahana*, 2. *Ghaṭa*,

1. स्तम्भसमं बाहुल्यं भारतुलानामुपर्युपर्यासाम् ।
भवति तुलोपतुलानामूनं पादेन पादेन ॥ LII.30.

Cf. Utpala—स्तम्भस्योपरि यत्तिर्यक् कृत्वा काष्ठं दीयते तद भारतुलासज्ञम् । प्रासादादिषु स्तम्भानां बहुत्वाद् भारतुला इति बहुवचननिर्देशः कृतः । भारतुलाया उपरि यदन्यत् काष्ठं दीयते तत् तुलोपतुला संज्ञम् ।. . . . वीप्साकरणात्केचिच्चतस्र इति वर्धयन्ति । भारतुला उपतुला तुलोपतुला चेति । आसां भारतुलातः पादेन पादेनोनं बाहुल्यं कार्यम् । ताश्चोपर्युपरि दीयन्ते इति ।

2. स्तम्भस्य नवमांशेन पद्मकुम्भान्तराणि तु ।
स्तम्भतुल्या तुला प्रोक्ता हीना चोपतुला ततः ॥
त्रिभागेनेह सर्वत्र चतुर्भागेन वा पुनः ।
हीनं हीनं चतुर्थांशात् तथा सर्वासु भूमिषु *Matsya*, CCLV.5-6.

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3. *Padma*, 4. *Uttaroṣṭha*, 5. *Bāhulya*, 6. *Bhāra*, 7. *Tulā*, and 8. *Upatulā*.[1] Acharya has definitely erred in taking '*bāhulya*' to be a moulding. Utpala (on 30) rightly takes it to mean thickness or depth and Varāhamihira himself has used the word in this sense (LII.26). Had *bāhulya* been a moulding, it must have been referred to in a similar verse from the *Kiraṇākhyatantra* quoted by Utpala[2] and in the relevant verses of the *Matsya-purāṇa* which is not the case. *Bhāra* and *Tulā* are not separate names, but form parts of one word—*Bhāratulā*, which, as we have seen, is the same as the *Tulā* of the *Matsya-purāṇa*. Dr. T. Bhattacharya[3] is also wrong in regarding *Bhāratulā*, *Tulā* and *Upatulā* as mouldings of pillars. It is evident from Bhaṭṭotpala's commentary that *Bhāratulās* were placed above the column horizontally (*tiryak*), not vertically. *Tulopatulā* or *Upatulā* and *Tulopatulā* were placed above the *Bhāratulās*. Thus *Bhāratulā* and *Tulopatulā* did not form parts of a column. Kern appears to be right in taking the three words to mean architrave, superior cross-beams and upper rafters which are even now used. *Bhāratulās* were meant to support a heavy roof (*bhāraṁ tolayantīti bhāratulāḥ*) Thus only five mouldings of columns are referred to in our work, viz., 1. *Vahana* or *Udvahana*, 2. *Ghaṭa*, 3. Shaft, 4. *Padma* and 5. *Uttaroṣṭha*. Roughly speaking, they correspond to the base, pedestal, shaft, capital and abacus or crowning figures.

These details possess an unusual interest inasmuch as they throw welcome light on the evolution of the 'Gupta order'. Generally speaking, the free-standing Aśokan columns consist of two parts, viz., monolithic, circular and slightly tapering shaft and the capital. The shaft arises abruptly from the ground without any suggestion of the base, and the capital with inverted longitudinal lotus petals is often described as a Persepolitan bell and is crowned by animal sculpture in the round. In the 2nd-1st century B.C., the pillar-making technique undergoes a marked change in that 'more attention was paid to the

1. *Dictionary of Indian Architecture*, p. 650; *Indian Architecture*, pp. 126-27.

2. विभज्य नवधा स्तम्भं कुर्यादुद्ग्रहनं घटम् ।
कमलं चोत्तरोष्ठं च भागे भागे प्रकल्पयेत् ॥

3. *Study on Vāstuvidyā*, pp. 202-204.

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embellishment of the bases of the pillars than to the capitals'. Thus at Bedsa, we come across the vase-shaped base, corresponding to our *Ghaṭa*, from which rises an octagonal shaft which very well answers our *Vajra* type. At Karli[1] (2nd century B.C.) and Nasik[2] (2nd century A.D.) are found vase-shaped pedestals above stepped bases, answering very well our *Ghaṭa* and *Vahana* (or *Udvahana*), from which rise square or octagonal shafts ending in capitals consisting of topsyturvied vase surmounted by crowning figures. At Karli again there are two lion-pillars with 16-sided shafts,[3] the *Dvivajraka* of our author. Among the specific characteristics of the Gupta buildings is included the shape of the pillars and capitals. Though the capital with longitudinal inverted lotus petals which corresponds to our *padma* is present at the Buddhist temple at Sanchi assigned to the first half of the fifth century A.D.,[4] the prevailing order of the day was 'the bowl of plenty' (*pūrṇa-kalaśa*) which gave rise to the 'vase and flower' motif which we find at Udayagiri and elsewhere. The Gupta pedestals are mainly square. In spite of this change names like *Ghaṭa*, *Kamala* and *Uttaroṣṭha* were allowed to continue, presumably because they had a history and tradition behind them. That the names of the mouldings of pillars are older than Varāhamihira is evident from their mention in the *Kiraṇākhyatantra*.

The first attempt at the ornamentation of the shaft can be traced to the Besnagar Garuḍa Pillar erected by Heliodorus (cir. 140 B.C.) the lower part of which is octagonal and the upper 16-sided with a band of 32 facets above. Thus the circular Aśokan shaft was replaced by many-sided ones of which the octagonal seems to have been the most popular. It is this evolved form of the shaft that is referred to by Varāhamihira.

CATUŚŚĀLAKA The general plan of a residential house in the Gupta period seems to have been based on a courtyard surrounded by chambers (*śālā*) on one (*ekaśāla*), two (*dviśāla*), three (*triśāla*) and four sides (*catuśśāla*). Five kinds of *catuśśāla* houses are mentioned—(i) *Sarvatobhadra* (31), an edifice with uninterrupted terraces (*alinda*) on all the four sides

1. Percy Brown, *Indian Architecture*, I, Pl. XXIV.
2. *Ibid.*, Pl. XXIX.
3. *Ibid.*, Pl. XIX.
4. *Ibid.*, p. 59, XLII.

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and broken by four doorways (Fig. 19), especially recommended for a royal residence and temples.[1] *Sarvatobhadra* is a comprehensive term denoting not only a four-doored structure, but also a quadruple image, one being carved on each side of a four-faced column, and other structures, villages and towns broken by four entrances. Thus two Kuṣāṇa inscriptions from Mathurā record the installation of *sarvatobhadrikā* images.[2] In the architectural traditions of south India, however, *Sarvatobhadra* denotes an eight-faced *śālā*.[3] (ii) *Nandyāvarta* (LII.32) is a structure with verandahs starting from the wall of the hall and going to its extremity from left to right and with a door on each side except in the west[4] (Fig 20). (iii) *Vardhamāna* (LII.33) has the front terrace of the main building (*dvārālinda*) extending from the left hall to the right hall, thence another terrace from left to right and thereon again another; it has a door on each side except in the south[5] (Fig 21). (iv) *Svastika* (34) has an entrance in the east, and a continual western verandah at the ends whereof begin two other verandahs (southern and northern) going from west to east and between the extremities of the latter is the fourth terrace (eastern).[6] (Fig 22) (v) *Rucaka* (35) has two terraces touching the ends in the west and east, and touching these two internally two more and one door on each side except in the north[7] (Fig 23). Nandyāvarta and Vardhamāna are said to be the best for all and Svastika and *Rucaka* mode-

1. Cf. *Matsya-purāṇa*, CCLIV.1.

2. *EI*, II, p. 203, No. XVI; p. 209, No. XXXVII. In a Mathura inscr. of Vikrama 1080, '*caturbimba*' is used in place of '*sarvatobhadrikā*, cf. *EI*, II, p. 211, No. XXXIX.

3. Cf. *Kāmikāgama*, XXXV.88—*sarvatobhadram=aṣṭ-āsyam*, P.K. Acharya, *Dictionary*, pp. 624-25.

4. Cf. *Matsya-purāṇa*, CCLIV.2.

5. Cf. *Matsya-purāṇa*, CCLIV.3. In S. Indian works this term was applied to a class of joinery, phallus and *śālās*, cf. *Mānasāra*, XVII.84; XXXV.4; LII.4; *Kāmikāgama*, XXXV.88.

6. According to the *Matsya-purāṇa* (CCLIV.3), on the contrary, *Vardhamāna* is a *catuśśāla* house without a door on the eastern side—*Pūrva-dvāra-vihinaṁ tat svastikaṁ nāma viśrutam*. All the printed editions of *BS* give the reading '*prāg-dvāraṁ svastikaṁ śubhadam*' (LII.34). The discrepancy between the *Matsya-purāṇa* and our text could be easily resolved by assuming that this reading is an error for '*svastik=śubhadam*'. But the following extract from Garga cited by Utpala conclusively shows that the printed reading is correct :—*Paścimo=ntagato=lindaḥ prāg=antau dvau tad=utthitau/Anyas=tan=madhya-vidhṛtaḥ prāg=dvāraṁ svastikaṁ śubham.*

7. Cf. *Matsya*, CCLIV.4.

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rate. Sarvatobhadra was suitable for kings and other persons of eminence (36). The *catuśśāla* houses seem to have been very popular in the Gupta age[1] and they are known as *causallā* in Hindi.

TRIŚĀLAKA. Of the *triśālakas*, we have references to (i) *Hiraṇyanābha*[2], a three-halled house without a northern hall; (ii) *Sukṣetra*, a house without an eastern hall; (iii) *Cullī*,[3] lacking a southern hall; and (iv) *Pakṣaghna*, without a hall in the west. While Hiraṇyanābha and Sukṣetra are spoken of with approval, the last two were regarded as inauspicious (37-8).

DVIŚĀLAKA. As for the *dviśālakas*, a structure was known as (i) *Siddhārtha*, (ii) *Yamasūrya*, (iii) *Daṇḍa*, (iv) *Vāta*,[4] (v) *Gṛhacullī* and (vi) *Kāca*, according as it had chambers in the (i) west and south, (ii) west and north, (iii) north and east, (iv) east and south, (v) east and west, and (vi) south and north. Of these only Siddhārtha was considered to be auspicious and the rest inauspicious (39-41).

SELECTION OF THE SITE. Generally speaking, the soil that is soft, even and of sweet odour and taste, is not hollow from inside, and abounds in commendable herbs, trees and creepers[5] is recommended for building a house (86). The advice that a house should not be constructed close to a minister's or a rogue's residence, a temple, a *caitya* tree and a cremation ground, facing a cross-road, and on a site shaped like a tortoise and abounding in anthills and holes (87-8) is prompted by the desire of providing an hygienic and peaceful environment and ensuring the durability of the structure. Further, the presence of water to the east, south-east, south, south-west, west and north-west of a house is disapproved, while that to the north and north-east is recommended (117). We get three modes of testing the soil :—(i) In the centre of the site was dug out a circular pit, one cubit in diameter and

1. Cf. *Mṛcchakaṭika*, Act III (Cārudatta had a *catuśśāla* house); *Amarakośa*, II.2. 10-11 (mentions *Svastka*, *Sarvatobhadra*, *Nandyāvarta* and *Vicchanda*). For an epigraphic reference to *catuśśāla* structures, cf. *ASWI*, IV, p. 90, Nasik No. 5, l.1.

2. Cf. *Matsya-purāṇa*, CCLIV.4, where it is styled 'Dhānyaka'.

3. Viśāla of *Matsya*, CCLIV.6.

4. Dhana of *Matsya*, CCLIV.11.

5. For trees whose presence near a house was approved or proscribed, see *supra*, p. 273.

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depth; it was filled again with the same earth ; according as the pit is insufficiently filled, just filled and overfilled the site in question is the worst, moderate and the best respectively.[1] (ii) The pit was filled with water which was allowed to remain for the time required for a hundred steps; if the water is not diminished, the site is best suited for erecting a structure.[2] (iii) If an *āḍhaka*-full of earth dug out of the pit weighs 64 *palas*, the site is fit for construction (90-1). These instructions which aim at avoiding a porous and loose soil for building a house are inspired by practical considerations. The main object of examining the soil appears to have been to ensure the stability of the structure and to ascertain the quantity of water available. Even modern architects approve these principles.

CASTES AND SITE. In ancient Indian town-planning different parts of a settlement were allotted to members of different castes. Thus the houses of the four castes in their descending order were located in the north, east, south and west (67-8). The intermediate directions, which were supposed to be presided over by the demonesses Carakī (north-east), Vidārī (north-west), Pūtanā (south-east) and Rākṣasī (south-west), were relegated to the out-castes such as the Śvapacas (81-2). A piece of land possessing certain properties was thought to be specially suited to a particular caste. In this connection, declivity of a site towards a partiular direction, colour, odour and taste of the soil, and the variety of the grass growing over it were taken into consideration. Thus a plot declining towards the north, east, south and west, white, red, yellow and black in colour, smelling like clarified butter, blood, food and wine, sweet, astringent, sour and pungent in taste, and covered by *kuśa*, *śara*, *dūrvā* and *kāśa* is recommended for the four castes in a descending order.[3] According to another

1. Cf. *Matsya-purāṇa*, CCLIII.16-17; *Mānasāra*, V. 34-37; *Samarāṅgaṇa-sūtradhāra*, VIII.67-68; *Viśvakarma-prākaśa*, I.61.

2. Cf. *Ibid*, I.62. The *Mānasāra* shows a strict attitude in the matter. According to it, the pit was filled with water, if there remained some water after 24 hours, the selected site was considered to be fit for receiving a building, cf. P.K. Acharya, *Dictionary*, p. 453.

3. But cf. *Matsya-purāṇa*, CCLIII.11-13, which assigns the pungent taste to the Kṣatriyas and astringent one to the Śūdras. These rules were much elaborated in later times and the earth was examined with regard to its touch and sound also, cf. *Samarāṅgaṇa-sūtradhāra*, VIII.48-51.

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view, the Brāhmaṇas could have their houses on plots declining in any direction; a Kṣatriya on those declining towards the east, south and west; a Vaiśya on sites sloping in the south or west; and a Śūdra on a site declivous in the west (89, 94-5). In case these signs were not quite clear, some superstitious methods were resorted to. Thus in a pit in the plot was kept an unbaked earthen lamp containing four wicks in the four quarters; the plot is recommended for the caste in whose quarter the wick burns longest.[1] According to another method, flowers of the colours assigned to the four castes were mixed together and kept for a night in a pit specially dug out for the purpose. The site was regarded as auspicious to the caste the flower of whose colour does not fade away on the next day[2] (92-3).

These methods of testing the soil and the practice of relegating it to a particular caste on the basis of its declivity, colour, odour and taste were prevalent from very early times as is evident from their mention in the Gṛhyasūtras.[3] They are mentioned in almost all the works of both the northern[4] and southern[5] architectutal traditions, indicating their widespread popularity and universal operation throughout India. After the examination of the soil, the site was ploughed and seeds were sown, evidently to test its fertility.[6] Then followed purificatory rites consisting of the stay of the Brāhmaṇas and cows there for a night.[7] Next, the landlord went to the site at an auspicious moment prescribed by an astrologer, worshipped deities and honoured the architect and the Brāhmaṇas. Lastly, touching his head, breast, thighs and feet according as he was a Brāhmaṇa, Kṣatriya, Vaiśya and Śūdra,

1. According to the *Matsya-purāṇa*, CCLIII.13-5, if all the four wicks burn equally long, the site was called '*sāmūhika*' (collective) and was fit for the houses and temples of the four castes. Also cf. *Viśvakarma-prakāśa*, I.62-64a.

2. Cf. *Viśvakarma-prakāśa*, I.69. The *Samarāṅgaṇa-sūtradhāra*, VIII.73, prescribes keeping flower-garlands.

3. E.g. *Gobhila-grhyasūtra*, Bk. IV, Ch. VII, 4, 20-23.

4. Cf. *Matsya*, Ch. CCLIII; *Bhavisya*, Ch. CXXX; *Samarāṅgaṇa*, Ch. VIII. Cf. D.N. Shukla, *Hindu Science of Architecture*, pp. 139-145.

5. Cf. *Mānasāra*, Chs. IV-V.

6. Cf. *Matsya*, CCLIII. 17-19, which mentions ploughing and sowing as a test.

7. Cf. *Manu*, V. 124, where the stay of cows for a day and night is mentioned as one of the five ways of purifying the soil.

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he drew a demarcating line which marked the commencement of construction (96-8).[1]

SITE-PLAN (*PADA-VINYĀSA*). Varāhamihira mentions two site-plans consisting of eighty-one (*ekāśitipada*) and sixty-four squares (*catuṣṣaṣṭipada*) which were believed to be presided over by forty-five deities, thirty-two external and thirteen internal (42-50). The plan of sixty-four squares was specially meant for temples and will be discussed in its proper place. As for the plan of eighty-one plots, Brahmā occupies nine squares (*navakoṣṭhakādhipa*) in the centre (*Brahma-sthāna*). Of the remaining deities, twenty occupy one square each (*padika*); twenty others known as *dvipada* preside over two compartments each; and four deities occupying three squares each are called *tripada* (Fig. 24). This plan was applicable to all kinds of secular structures, towns and villages (67).[2] These plans were greatly elaborated in later times. The *Samarāṅgaṇa-sūtradhāra* (XIII.1) mentions three kinds of ground-plan, viz., (i) Paramaśayika, of 81 squares, (ii) Caṇḍita, of 64 plots, (iii) Āsana, of 100 squares. The *Mānasāra* (Ch. VII) describes as many as thirty-two plans.[3] But only two comprising 81 and 64 plots appear to have been in use during our period.[4] This system of dividing the site into squares immensely helped the architect in calculating relative proportions of the various parts of a building. Thus if in the plan of 81 plots construction of the door at Jayanta and Indra is approved (70), it only means that the eastern door in question may be placed in the third or fourth square in the outer band.[5] Though our author

1. The line was to be drawn with the thumb, middle finger or fore-finger and with gold, a precious stone, silver, pearl, curd, fruit, flowers or coloured rice (*akṣata*). A line drawn by a weapon, iron, ashes, straw, wood, feet, hide, charcoal, bone or tooth and in an anti-clock-wise order was regarded as inauspicious and so were harsh speech, spitting and sneezing (99-102). Cf. *Matsya*, CCLIII.19-20, according to which the demarcating line may be drawn with flour.

2. Cf. *Matsya*, CLIII.21; *Samarāṅgaṇa*, XIII.3. But *contra Samarāṅgaṇa*, XIII.5, which says that royal camps, villages, towns, etc. should be laid in accordance with the plan of 64 squares.

3. The plans of 64 and 81 squares are 8th and 9th in the *Mānasāra*, VII.9-10.

4. *Matsya*, CCLIII.19 ff. also mentions only these two plans.

5. Stella Kramrisch observes that 'the relation of the Vāstu-Puruṣa

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refers to only square plans, they could as well be applied to circular, hexangular and sixteen-sided structures which are mentioned by him. Utpala is aware of this omission on the part of Varāhamihira and supplies necessary information about circular (Fig. 25) and triangular (Fig. 26) plans from a work of one Bharatamuni.[1] Triangular structures, if any, of the Gupta period are not known; they might have been

to the site-plan, ground-plan and vertical section of any building is similar to that of the tonic and any musical composition. The Vāstu-Puruṣamaṇḍala gives the principle of all planned architectural forms and the prototype of its various rythms', vide her *Hindu Temple*, I. p. 22.

1. Utpala on LII.55-6 :—अत्राचार्येण चतुरस्रे क्षेत्रे वास्तुनरः प्रदर्शितः न वृत्तषडश्र्यष्टादशाश्रिषोडशाश्रीणां । लोके च गृहग्रामनगराणि दृश्यन्ते । तद्यथा अनेनैवाचार्येणोक्तम् :—तत्र षडश्रिर्मेरुः । वृत्तः समुद्गनामा इत्यादि । तथा भरतमुनिना त्र्यस्रं वृत्तं गृहमुक्तम् । तस्मादन्यशास्त्रादानीय प्रसङ्गादस्माभिरिह प्रदर्श्यते । तद्यथा :—

एकाशीतिपदे क्षेत्रे कर्तव्यं वृतपञ्चकम् । बाह्ये वृत्तद्वयं यत्तत्पदद्वात्रिंशता युतम् ।।
तृतीयं द्वादशपदं चतुर्थं तु चतुष्पदम् । केवलं पञ्चमं कार्यं ब्रह्मा पञ्चस्ववस्थितः ।।
शिख्यादयस्तु द्विपदा बहिर्विष्कम्भसंस्थिताः । अर्यमाद्याः सुराः सर्वे पदिकाः परिकीर्तिताः ।।

इति वृत्तक्षेत्रे एकाशीतिपदे ।

वृत्तानि चत्वारि समानि कृत्वा वास्तोश्चतुः षष्टिपदस्य सम्यक् ।
अधस्तदर्धेन च सूर्यवेदैर्विभज्यते वृत्तचतुष्टयं च ।।
शिख्यादयश्चैकपदे निविष्टाः पदद्वये चार्यमकादयश्च ।
आपादयश्च त्रिपदाः प्रतिष्ठाश्चतुष्पदश्चात्र पितामहः स्यात् ।।

इति वृत्तक्षेत्रे चतुःषष्टिपदे । एवमेव षडश्रिप्रभृतीनां विन्यासः कार्यः ।

त्र्यस्रे क्षेत्रे चः—

त्र्यस्राणि पञ्च क्षेत्राणि त्रिकोणे परिकल्पयेत् ।।
प्राची दिगष्टधा कार्या कोणवर्ज्या ततः परे ।
रविभागविभक्ते ते वास्तुद्वाराणि तानि तु ।।
दितिं वायुं जलपतिं कोणेषु त्रिषु विन्यसेत् ।
ततः शिख्यादिकान् सर्वान् शेषेषु विनिवेशयेत्।।
द्वितीये पूर्ववद्भागाः षोडश द्विगुणास्ततः ।
तत्रापि कोणत्रितये पूर्वोक्तान् विबुधान् न्यसेत् ।।
शेषेषु वास्तुकोष्ठस्थान् सुरांश्च विनिवेशयेत् ।
क्षेत्रे तृतीये चत्वारि सर्वशाखासु कारयेत् ।।

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popular in Utpala's time. As we shall see below, the site was believed to be identical with the body of Vāstupuruṣa. A diagonal (*vaṁśa*, 57, 61, 63) is said to be as many digits in breadth as a square measures in terms of cubits and the straight lines running east-west and north-south (*śirā*) were in breadth one and a half times the diagonals (63).[1] Utpala criticises Varāhamihira for not distinguishing the *vaṁśas* and *rajjus* and extracts two and a half verses from his own work on *Vāstuvidyā* to the effect that the two diagonals from Roga to Vāyu and Pitṛ to Śikhin were called *vaṁśa*, others being known as *rajju*.[2] The nine meeting points of the diagonals and the exact middle points of the squares (1/8th of a square) were considered to be the most vulnerable points and these together with *Brahmasthāna*, when hurt by impure articles, nails, pegs, pillars, etc., were believed to trouble the landlord in the corresponding limbs of his body (57-8, 60-64).[3]

VĀSTUNARA. The building-site constituted the body of Vāstunara. As for his descent, we are told that once there

प्राग्गतिर्यमसावित्रौ सविता च ततः परम्।
विवस्वानिन्द्रमित्रा च जयश्चैव हरस्तथा ॥
राजयक्ष्मा भूमिधर आपो वत्सयुतः स च।
चतुर्थे पञ्चभिर्भागैः कृत्वा तन्मध्यगस्तथा ॥
पितामहो विनिर्दिष्टस्त्र्यस्रक्षेत्रेऽप्ययं विधिरिति।

1. Cf. Utpala—रोगाद्वायुमित्यादिकं सूत्रषट्कं वंशशब्देनोच्यते। ... शिराशब्देन पूर्वापरायता दक्षिणोत्तरायताश्च दश दश रेखा ज्ञेयाः।

2. अत्राचार्येण वंशानां रज्जूनां च विभागो नोक्तः समासेन रोगाद्वायुमिति सूत्रलक्षणं कृतम्। तथा चास्मदीयवास्तुविद्यायाम् :—

रोगाद्वायुं नयेत् सूत्रं पितृतोऽथ हुताशनम्।
एतत्सूत्रद्वयं प्रोक्तं मुनिभिर्वंशसंज्ञितम् ॥
वितथाच्छोषकं चान्यद् भृशं मुख्यात्तथा नयेत।
जयन्ताद् भृङ्गराजाख्यं सुग्रीवमदितेस्तथा ॥
एतच्चतुष्टयं प्रोक्तं रज्जुसंज्ञं मनीषिभिः।

3. Scratching a limb or limbs or an ill omen at the time of a query and a defect in the fire while offering an oblation to a constituent diety of Vāstunara was supposed to indicate the presence of a peg in the corresponding limb of the House-God (LII.59). P.K. Acharya takes it to imply 'that certain parts of the ground-plan should be reserved as sacred places', cf. *Mānasāra*, Engl. tr., p. 55, fn. 3.

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was some being undefined by name and form; it obstructed the heaven and the earth by its body and was therefore suddenly seized and laid topsy-turvy by the host of gods who became the presiding deities of its different limbs touched by them; the Creator made the being House-God (Vāstunara) of the nature of gods (2-3). This story is greatly amplified in the *Matsya-purāṇa* (Ch. 252). Vāstunara is male and his image should be carved in the likeness of man. He should be represented in such a way as to cover the entire site. His head is turned to the north-east and face hung down. Different parts of his body are occupied by several gods in the following manner :

Right Side :—Head-Śikhin; face-Āpaḥ; pap-Aryaman; chest-Āpavatsa, Indra; eye-Parjanya; ear-Jayanta; shoulder-Sūrya; arm-Satya, Bhṛśa, Antarikṣa, Anila, Pūṣan; hand-Savitā and Sāvitra; side-Vitatha, Bṛhatkṣata; stomach-Vivasvat; thigh-Yama; knee-Gandharva; shank-Bhṛṅgarāja; buttock-Mṛga;

Left Side :—Pap-Pṛthvīdhara; eye-Diti; chest-Bhujaga; shoulder-Soma; arm-Bhallāṭa, Mukhya, Ahi, Roga, Pāpayakṣmā; hand-Rudra, Rājayakṣmā; side-Śoṣa, Asura; thigh-Varuṇa; knee-Kusumadanta; shank-Sugrīva; buttock-Dauvārika; genital organ-Śakra, Jayanta; heart-Brahmā; feet-Pitṛ (51-4).

As regards other arrangements of a house, it is laid down that in a *catuśśāla* house, the chamber of worship (*devagṛha*) should be located in the north-east, kitchen in the south-east, store-room in the south-west, and granary and treasury in the north-west (116). A bed-chamber along the diagonals was disapproved (122). It is further laid down that a house should be so constructed that when one enters the court-yard, it should lie to one's right. According to Utpala, it means that according as a house faces the east, south, west and north, the entrance of the courtyard should face north, east, south and west respectively (68 comm.). As a general rule it is enjoined that a house should be equally elevated on all sides. In case it is not possible to avoid an unsymmetrical elevation, it may be either in the east or north (113-115). Buildings were also required to be straight and face a cardinal point, and those violating this rule were believed to anticipate certain disasters (113).

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STONE-LAYING CEREMONY. The next operation following the selection of the site and the preparation of the ground-plan was to lay blocks of stones first in the south-east and then in the south, south-west, west, north-west, north, north-east and east in order, or according to another interpretation beginning with the north-east in a clock-wise manner (*pradakṣiṇa*), which marked the commencement of building and resembled the modern stone-laying ceremony. Columns and doors were also erected in a similar manner. Utpala informs us that the latter interpretation was followed by architects in his time (110-11).[1]

VAJRALEPA, VAJRATALA, VAJRASAṄGHĀTA. Besides mentioning burnt bricks (*pakveṣṭakā*, 23), wood[2] (23) and stone (110-111) as building materials, Varāhamihira in Ch. 56 of the *Bṛhatsaṁhitā* describes four kinds of plaster—two Vajralepas, Vajratala, and Vajrasaṅghāta. Vajralepa was composed of the precipitate of unripe *tinduka* and *kapitthaka* fruits, blossoms of the silk-cotton tree, seeds of *śallakī*, skin of *dhanvana* and *vacā* boiled in a *droṇa* of water and reduced to 1/8th of its original volume and finally mixed with *śrīvāsaka* (resin of a tree), *rasa*, *guggulu*, *bhallātaka*, *kunduruka* (resin of *devadāru*), resin of *sarja*, linseed and *bilva* fruit (LVI.1-3). Another plaster of the same name was prepared in the above manner from lac, resin of *devadāru*, *guggulu*, *gṛhadhūma*,[3] kernel of the *kapittha* and *bilva* fruits, fruits of *nāga*, *nimba*, *tinduka* and *madana*, resin of *sarja* and myrobalan fruit (LVI.5-6). A paste called Vajaratala was prepared in the above manner from the horns of cows, buffaloes and goats, hair of donkeys, skins of buffaloes and cows, *nimba* and *kapittha* fruits and *rasa* (LVI.7). A plaster composed of eight parts of lead, two of bell-metal,

1. Cf. Utpala—एतदुक्तं भवति । प्राग्दक्षिणस्यां दिशि शिलान्यासं कृत्वा ततो दक्षिणस्यां ततो नैर्ऋत्यां ततः पश्चिमायां ततो वायव्यां तत उत्तरस्यां तत ऐशान्यां ततः पूर्वस्यां दिशि शिलान्यासं कुर्यादिति । केचिदुत्तरपूर्वे कोणे कृत्वा पूजां शिलां न्यसेत् प्रथमिति पठन्ति । उत्तरपूर्वे चैशानकोणे शिलान्यासं कृत्वा ततः शेषाः प्रदक्षिणेन न्यस्या इत्येतल्लोके स्थपतिषु दृश्यत इति ।

2. The use of *dhava*, *vibhītaka*, *nimba* and *araṇi*, of the trees that are thorny, milky, laden with fruits, broken, withered or burnt, and of those that abound in birds' nests and grow at cremation ground or near a temple was disapproved, cf. LIII. 84, 118.

3. Cf. Utpala—*Gṛhadhūmo' = gāradhūmaḥ śyām—eti prasiddhaḥ.*

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and one of iron-rust was known as Vajrasaṅghāta.[1] These pastes were applied hot to temples, mansions, windows, *liṅgas*, images, walls and wells and are said to adhere for 'a crore of years' (LVI.4).

It was held by M. M. Ganguli[2] that the red paint seen on some temples at Bhuvaneshwar and a few sculptures in the Koṇārka temple is really the Vajralepa mentioned by our author. But a chemical analysis of a sample of the red paint from the Mukteshwara temple at Bhuvaneshwar renders the conjecture improbable.[3]

CEREMONIALS AND BELIEFS. Religion has played a vital role in all walks of Hindu life and architecture is not an exception. A number of rituals was performed in course of construction. Oblations were offered to Vāstunara and deities of squares and omens interpreted from the appearance of fire.[4] The site-plan is inspired to a great extent by religious considerations. Worship was offered to deities while demarcating a building-site (97). Every constituent of a structure was looked upon with a feeling of sanctity and columns and doors were erected being decked with parasols, wreaths, cloths, incenses and ornaments (111). Before cutting down a tree for timber, offerings were made to it in the previous night and only a tree that fell to the north or east was to be used (121). After a building was ready, the entrance ceremony was performed as now with great pomp and show. The house was decorated with an abundance of flowers, leafed arches and pitchers filled with water. The Brāhmaṇas recited Vedic hymns and gods were worshipped with incenses, perfumes and oblations (123).[5]

Besides, there were certain beliefs which may be recorded here. When the landlord entered a finished or unfinished house, the place where he stood and the particular limb he touched were carefully observed and these in association with the birds and animals crying harshly or warbling sweet were

1. LVI.8. This plaster is attributed to Māya.
2. M.M. Ganguli, *Orissa and Her Remains*, pp. 135 ff.
3. *Ancient India*, No. 6 (January, 1950), pp. 103-104.
4. LII.59. Cf. *Matsya*, CCLIII.22 et seq.
5. Utpala says that only the internal gods of *Vāstupuruṣa-maṇḍala* were worshipped—*Atra sāmānyen-oktaṁ pūjit-āmaraṁ tathāpi vāstumadhyagatā amarāḥ pūjanīyā na bāhyasthāḥ Śikhi-Parjany—ādayo=ryam-ādyā vā.*

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supposed to indicate the presence of a bone or wealth inside the earth (103-105, 107). The braying of an ass at the time of measuring the site and a dog or jackal crossing the measuring string were also taken to indicate the presence of a bone (106). Similarly, the snapping of the measuring string, a peg driven upside down, the architect and the landlord forgetting something, the falling from shoulder, draining away or breaking of a water-jar, birds sticking to columns and doors, and the shaking, fall or misplacement of pillars or doors were believed to foreshadow certain calamities (108-109, 112).

STHAPATI. We may conclude this section with a few words about the architect. In later works various classes of architects are mentioned. The *Samarāṅgaṇa-sūtradhāra* (Ch. 44) refers to four classes of architects, viz., *Sthapati*, *Sūtragrāhin*, *Vardhakin* and *Takṣaka*, and describes their qualifications with meticulous details, while the *Mānasāra* (Ch. 2) narrates their legendary origin. These categories are conspicuous by their absence in our work as also in the *Matsya-purāṇa*, which refer to the architect by the common name *sthapati*. *Sthapati* combined in him the functions of both the engineer and the mason. He was responsible for preparing the ground-plan and for the successful completion of the undertaking. As a result of the high qualifications and the useful service he rendered to the society, he enjoyed a high status. In the various stages of construction, the landlord showed respect to him and at the commencement of building, honour was accorded to the *sthapati* even before the Brāhmanas.

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II

TEMPLE ARCHITECTURE

Temple-architecture is dealt with in Ch. LV entitled 'Prāsādalakṣaṇādhyāya'. It will be worth-while to analyse the contents of this chapter with special reference to the actual specimens that have come down to us.

PRĀSĀDA. *Prāsāda* is the most common word used to denote a temple.[1] It occurs in this sense in the *Amarakoṣa* (II.2.9), *Matsya-purāṇa* (Chs. CCLXIX-CCLXX), the Eran inscr. of the time of Toramāṇa, Mandasor inscr. of Kumāragupta and Bandhuvarman, Gwalior inscr. of Mihirakula, Bodh-Gaya inscr. of Mahānāman[2] and a large number of other literary and epigraphic records. *Surālaya*[3], *surabhavana*[4], *devālaya*[5], *devatāyatana*[6], *devakula*[7], *devagṛha*[8], *devāgāra*,[9] *āyatana*[10] and *vibudhabhavana*[11] are other words used in the same sense. It is curious to note that the word *mandira* which is so very popular now-a-days does occur[12]; but as observed by Utpaḷa, it denoted a residential building and not a temple.

The construction of temples was considered to enhance one's reputation and religious merit and to lead the builder to the worlds attainable by the observance of *iṣṭa* (sacrifices) and *pūrta* (charitable acts, LV.1-2; LXVII.49). Shrines are known to have existed much earlier;[13] but being built of

1. LV.19, 31; LVI.4; LXXXV.17; LXXXVIII.6; XCIV.5, 34.
2. *CII*, III, p. 160, ll.6-7; p. 81, l.7; p. 162, l.6; p. 276, l.11.
3. IX.42; LVIII.2; XCV.4.
4. LXXVIII.4.
5. LII.118. Cf. *devānām ālayaḥ* in LV.2.
6. LV.1, 9, 10.
7. LII.87; LXVII.49; *YY* (V.R. Pandit's ed.) XV.20.
8. LII.116.
9. LVII.3.
10. L.4; LIX.16.
11. CIII.62.
12. IV.2; LXXXVIII.8; XCV.4; *BJ*, V.13, 19; XXV.4; *PS*, XIII.56; *YY*, II.5.
13. Cf. *Śāṅkhāyana-śrautasūtra* XVI.18.13-17 (*prāsādas* on all sides of *āhavaniya* fire); Patañjali's *Mahābhāṣya* II.2.34 (*prāsadā Dhanapati-Rāma-Keśavānām*); Bhilsa Garuḍa pillar inscr. of about 2nd century B.C. (*uttama prāsāda* of Bhagavat); *Vaijayanta* ,*prāsāda* represented in a relief panel from Bharhut, Coomaraswamy, *History of Indian and Indonesian Art*, Fig. 43.

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impermanent and perishable materials,[1] they could not survive the millennia that have since elapsed. The use of brick and stone for religious structures gave a new power in the hands of the architect. The idea of the religious merit accruing from the construction of temples provided another incentive. Though very few temples of the Gupta period are now extant, contemporary epigraphic and literary evidence leaves no room for doubt that the country was literally covered with shrines belonging to various sects.

THE SITE. Detailed instructions are given regarding the selection of the site a temple is to stand upon. Generally speaking, the site should have plenty of water, trees and groves. Thus the spots best suited to receive temples were those skirted by forests, rivers, mountains and cataracts. But in the densely populated cities and towns where natural scenery in the form of rivers and forests was conspicuous by its absence the selected site had to be beautified by excavating tanks and laying out gardens and parks, for the presence of gods was considered to be easy of access in those places alone which are furnished with water and gardens, natural or artificial. 'Deities', says Varāhamihira, 'come near the spots furnished with water and groves, natural or artificial. They always sport in places rendered charming on account of ponds which have a parasol of lotuses warding off the beams of the sun, clear water with the avenues of white lotuses agitated by swans with their shoulders, resound with the notes of swans, *kāraṇḍava*, *krauñca* and *cakravāka* and have the aquatic animals in the shade of *nicula* trees standing on their banks; or near the rivers having *krauñca* birds for their elaborate girdles, melodious notes of *rājahaṁsas* for their voice, beautiful garments in the shape of a vast sheet of water, belts in the form of fishes, floral ear-ornaments in the form of blooming trees on their banks, buttocks formed by confluences, lofty spots on the banks forming their breasts, and *haṁsas* for laughter. The gods are delighted to dwell in places skirted by forests, rivers, mountains and cataracts as also in towns furnished with parks.' (LV.3-8). Utpala quotes some verses of similar import from

1. Cf. *Āpastamba-gṛhyasūtra*, vii.20, which refers to the carrying of images by the householder and placing them in huts built for the purpose.

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Kāśyapa. That these injunctions were followed in practice is evident from the fact that almost all ancient temples are found to have ponds, lakes or rivers nearby. Skirted by hills on the south, west and north, the Daśāvatāra temple at Deogadh lay in close proximity of the river Betwa; the temples at Bhuvaneśvara, Purī and Koṇārka had tanks close by; and the cave temples at Ellora and the rock-hewn monasteries and *caitya*-halls at Ajanta, Karle and Kanheri were all located in a beautiful natural setting.[1]

SITE-PLAN. The temple-site was usually divided into sixty-four plots by drawing nine lines across and nine vertically as also diagonals from corner to corner (Fig. 27). In this scheme, Brahmā occupies four central plots which are consequently known as *Brahma-sthāna*. The four squares in the corners along the circumference of Brahmā and the four outermost corner squares are shared by two deities each, while the gods located on both sides of the outermost corners are allotted one and a half square each. The remaining twenty gods preside over two squares each and are, therefore, called *dvipada*.[2] Like the plan of eighty-one squares, it could also be applied to circular structures (Fig. 28).

These presiding deities constituting Vāstupuruṣa were worshipped throughout the different stages of construction with various offerings which are amplified in the *Matsya-purāṇa* Ch. CCLXVIII. That this division of the site selected to receive a structure was no innovation of astrologers and was actually followed by architects is clear from the surviving examples of contemporary temple architecture. It is accepted by archaeologists that Hindu temples were usually laid on the

1. For caste-wise selection of the site, see LII.89, 92-95; LV.9.

2. अष्टाष्टकपदमथवा कृत्वा रेखाश्च कोणगास्तिर्यक् ।
ब्रह्मा चतुष्पदोऽस्मिन्नर्धपदा ब्रह्मकोणस्थाः ॥
अष्टौ च बहिष्कोणेष्वर्धपदास्तदुभयस्थिताः सार्धाः ।
उक्तेभ्यो ये शेषास्ते द्विपदा विंशतिस्ते हि ॥
चतुःषष्टिपदं कार्यं देवतायतनं सदा ।

LII.55-6; LV.10.

For the enumeration of the deities, see LII.43-48.

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plan of squares. Thus Cunningham[1] and, following him, M.S. Vats[2] have pointed out that the terrace over the basement of the Gupta temple at Deogadh was divided into nine equal squares, the central one being occupied by the *garbhagṛha*. It is, however, interesting to note that this plan is in agreement not with the scheme of 64 squares detailed above but with that of 81 squares (*ekāśīti-pada*) in which Brahmā occupies nine central squares.[3]

MEASUREMENTS. The one purely architectural module of proportionate measurement elaborated by Varāhamihira is the width of the *prāsāda* measured externally. In some respects the proportionate dimensions of the various parts of a shrine differ radically from those prescribed for a residential building. Thus while a residential house is required to be equal in height and width, the height of a temple should be double its width and the terrace (*kaṭi*) above the basement over which the shrine is to be erected should be one-third of this height.[4] This accords fairly well with the *Viṣṇudharmottara* (III. LXXXVI.4) according to which the *jagatī* (base) is to be 1/3rd of the height. The internal breadth of the *garbhagṛha* is half of its external width, the remaining portion being occupied by thick walls.[5] These rules appear to have been followed in some of the extant temples. Thus the relative proportions between the width and the height are approximately applicable to the Daśāvatāra temple at Deogadh which is a plain square 18′ 6″ × 18′ 6″ side[6] and 'its height when entire could not have been less than 40 feet'.[7] As pointed out by Cunningham,[8]

1. *CASR*, Vol. X, p. 105.
2. *The Gupta Temple at Deogadh*, *MASI*, No. 70, p. 5, Pl. II.
3. See *supra*, p. 387.
4. यो विस्तारो भवेद् यस्य द्विगुणा तत्समुन्नतिः ।
   उच्छ्रायाद् यस्तृतीयांशस्तेन तुल्या कटिः स्मृता ॥ LV.11.

According to Utpala, *kaṭi* is the starting point of the temple above the steps:—*sopān – opari yato devagṛhasya prārambhaḥ sā kaṭir=ucyate.*

5. *Vistār-ardhaṁ bhaved=garbho bhittayo=nyāḥ samantataḥ*, LV.12. Utpala tells us that a circumambulatory path should be left between the *garbhagṛha* and the walls:—*Hastatrayaṁ bhramaṇāya sarvāsu dikṣv=anāvṛtaṁ sthāpayitvā śeṣaṁ bhitty=avaṣṭabdhaṁ kuryāt.*
6. *MASI*, No. 70, p. 6.
7. Percy Brown, *Indian Architecture, Buddhist and Hindu*, p. 60.
8. *CASR*, X, pp. 70-71.

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the height of the temple at the foot of the Godoni hill at Pathari, 50 miles to the north-north-east of Vidiśā, is exactly twice its width, which is strictly in accordance with the dimensions given by our author. As to the proportion between the external and internal width, the Deogadh temple externally measures 18′ 6″ × 18′ 6″, while the square sanctum it leads to is 9′ 9″, deviating very slightly from the dimensions mentioned above. But the exact corroboration of the proportions under consideration is to be met with in the Muṇḍeśvarī temple which externally measures 40′ in diameter, while the internal diameter of the *garbhagṛha* is exactly 20 feet, the walls being 10 feet thick.[1] Similarly a later temple at Paraoli in Kanpur is 13′ 4″ in external diameter, the cella measuring internally 6′ 8″.[2]

Next are given rules about the dimensions of the doorway. In width it is $\frac{1}{4}$th of the *garbhagṛha*, thus covering only 1/8th of an entire side-wall. In contradistinction to the doors of the residential buildings (of the members of four castes) which should be in height three times their width, the height of the temple-door is only twice the width, the difference being apparently inspired by the practical consideration that a door with a height only two times its width would be too low for residential purposes. The jamb (*śākhā*) and the lintel and sill (*udumbara*) should each be in width equal to a quarter of the height, the depth of the former (*śākhā*) being a quarter of the width of the door, i.e., half its own width (LV.12-13).

Some of the extant examples show that these dimensions were more or less followed in constructing temples. Thus the height of the doorways of the caves 1, 4 and 5 at Ajanta is about twice the width. The doorway leading to the sanctum of the Gupta temple at Deogadh measures 6′ 11″ × 3′ 4$\frac{1}{2}$″[3], which approximates to the dimensions laid down in our text.

About the general position of the door it is laid down that it should face an exact cardinal point and not an intermediate direction and should be so placed in the middle of the side wall that equal parts of a wall are left on both the sides (LV.10).

1. *ASI, NIS*, Vol. LI, (1931), p. 144, fig. 93.
2. *CASR*, XI, p. 46.
3. *MASI*, No. 70, p. 12, Pl. XI(a).

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It is interesting to note in this connection that from his survey of the Gupta temples Cunningham concluded that 'deviation in plan from the cardinal point' was one of the characteristics of the Gupta style and suggested that 'it may have been an intentional deviation of one Nakṣatra or lunar mansion amounting to 13° 12'.[1]

Another set of proportionate measurements which is not elaborated but implied is the height of the main cult-object, whether *liṅga* or image, housed in the shrine. It is, thus, stated that the total height of the image-cum-pedestal should be less by 1/8th than that of the doorway, the ratio between the height of the image and the pedestal being 2/3 and 1/3 respectively.[2] It would follow from the above that Varāhamihira is very clear on the relation between the different parts of the edifice and that between the edifice and the height of the main cult object.

It is interesting to note that the canons laid down by Maya and Viśvakarmā about the height of a *bhūmi* (storey) are reiterated by Varāhamihira. According to Maya, a storey's altitude is 108 *aṅgulas* (6′ 9″), whereas Viśvakarmā pronounced it to be three cubits and a half or 84 *aṅgulas* (5′ 3″). But as pointed out by Varāhamihira, in reality no difference exists between the two, for if we add the height of the crown-work called *kapotapāli* the smaller figure would equal the larger.[3]

DECORATIVE FEATURES. The usual plainness of the early Gupta temple was relieved by its delicately ornamented doorway. We get reference to the following decorative features: the door-jamb comprising 3, 5, 7 or 9 vertical mouldings, the lower one-fourth portion of the door-jamb occupied by an

1. *CASR*, IX, pp. 43-4.
2. द्वारमानाष्टभागोना प्रतिमा स्यात् सपिण्डिका ।
   द्वौ भागौ प्रतिमा तत्र तृतीयांशश्च पिण्डिका ॥
   LV. 16.
3. भूमिकाङ्गुलमानेन मयस्याष्टोत्तरं शतम् ।
   सार्द्धं हस्तत्रयं चैव कथितं विश्वकर्मणा ॥
   प्राहुः स्थपतयश्चात्र मतमेकं विपश्चितः ।
   कपोतपालिसंयुक्ता न्यूना गच्छन्ति तुल्यताम् ॥
   LV.29-30.

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attendant figure (*pratihāra*) on each side, auspicious birds such as *haṁsa*, *jīvaka*, *kāraṇḍava* and *cakravāka*, *śrīvṛkṣa*, *svastika*, auspicious pitchers, amorous couples, foliated scrolls, and the dwarfish figures called Pramathas.[1]

To give only a few examples, the door-jambs of the Śiva temple at Bhumara and the Viṣṇu temple at Eran each consist of three distinct vertical bands of carving.[1a] Similar is the case with the Bina cave (No. 3) at Udayagiri where 'the plain frame is surrounded by three lines of rich mouldings,'[2] and the doorway on the south end of the verandah of the Chandragupta cave 'is divided into sculptured panels, two to left and three to right.'[3] The door-frames of the Deogadh[4] and the Śiva temple at Dah Parbatia in Assam,[5] however, comprise four vertical mouldings of carving on each side which does not agree with the prescribed rule. The door-keepers are to be seen at Deogadh, Udayagiri,[6] Nachna,[7] etc. All these motifs except the auspicious birds may be recognised in the Gupta temple at Deogadh and the lucky birds at Dah Parbatiya. The presence of the river goddesses Gaṅgā and Yamunā on *makara* and tortoise respectively usually on the proper right and left sides of the door-jamb alongside the lintel and sometimes below, which is regarded as one of the characteristics of the Gupta style,[8] is conspicuous by its absence not

1. त्रिपञ्चसप्तनवभिः शाखाभिस्तत्प्रशस्यते ।
अध शाखाचतुर्भागे प्रतीहारौ निवेशयेत् ॥
शेषं मङ्गल्यविहगैः श्रीवृक्षैः स्वस्तिकैर्घटैः ।
मिथुनैः पत्रवल्लीभिः प्रमथैश्चोपशोभयेत् ॥

LV.14-5.

1a. R. D. Banerji, *The Temple of Śiva at Bhumara*, *MASI*, No. 16, p. 45, Pl. IIIa; *CASR*, X, p. 86.

2. *Ibid.*, p. 47.

3. *Ibid.*, p. 50, Pl. XVII.

4. *MASI*, No. 70, pp. 12-3, Pl. IXa.

5. *ASI*, *AR*, 1924-25, p. 98, Pl. XXXII c.

6. *CASR*, X, pp. 50-51.

7. *Classical Age*, Pl. XII, fig. 23.

8. The characteristics of the Gupta style, according to Cunningham, are as follows:—1. flat roofs, without spires of any kind, as in cave temples; 2. prolongation of the head of the door-way beyond the jambs; 3. statues of the river goddesses Gaṅgā and Yamunā guarding the entrance door; 4. pillars with massive square capitals, ornamented with two lions back to

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only in our text but also in other early texts. In early temples they stand usually higher up alongside the lintel, e.g., at Deogadh, Nachna Kuthara, Tigava; but occasionally they have their position below as at Bhumara, Eran and Dah Parbatiya temples. Another decorative feature which remains unnoticed in our work is the miniature figure of the cult deity enshrined in the cella in the centre of the lintel (*dvāra-lalāṭa-bimba*) as at Deogadh,[1] Bhumara,[2] Dah Parbatiya[3] and other places.

TEMPLE-TYPES. Varāhamihira mentions the following twenty types of temples differing from one another in regard to dimensions, arrangements and plan :—1. Meru, 2. Mandara, 3. Kailāsa, 4. Vimānacchanda, 5. Nandana, 6. Samudga, 7. Padma, 8. Garuḍa, 9. Nandivardhana, 10. Kuñjara, 11. Guharāja, 12. Vṛṣa, 13. Haṁsa, 14. Sarvatobhadra, 15. Ghaṭa, 16. Siṁha, 17. Vṛtta, 18. Catuṣkoṇa, 19. Soḍaśāśri and 20. Aṣṭāśri (*BS*, LV.17-9). This classification is based on the number of storeys and spires, divergent dimensions and plan and the position of doors variously designed with a view to provide a desired volume of light or darkness, Roughly speaking, they conform to 16-angled, octagonal, hexagonal, dudecagonal, square and round plans. The first three names denoting the largest temples then known are evidently derived from mountains on account of their imposing height. Differences between these types are so great that Stella Kramrisch[4] has been constrained to suggest that 'they were due partly to the integration of sanctuaries of heterogeneous origins in Hindu temple.'

1. *Meru*, the largest temple described in our text, is hexagonal in shape, has twelve storeys, variegated windows and four entrances facing cardinal points, and is 32 cubits (48″)

back, with a tree between them; 5. bosses on the capitals and friezes of a very peculiar form like Buddhist Stūpas, or bee-hives, with projecting horns; 6. continuation of the architrave of the portico as a moulding all round the building; 7. deviation in plan from the cardinal points. The Tigava temple possesses all the seven characteristics (*CASR*, IX, pp. 42-4).

1. *MASI*, No. 70, p. 12, Pls. IV, IXa.
2. *MASI*, No. 16, p. 5, Pl. IIIb.
3. *ASI*, *AR*, 1924-25, Pl. XXXIIc.
4. *The Hindu Temple*, Vol. I, p. 237.

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wide.[1] As observed by Bühler,[2] Meru is originally the name of the fabulous golden mountain in the centre of Jambudvīpa on which gods reside and it is only figuratively that it denotes a temple-type and is applied in geographic names to any hill covered with splendid temples and palaces, e.g., Jaisalmer, Komalmer, Ajmer. A detailed account of Meru is found in Bhoja's *Samarāṅgaṇa-sūtradhāra* (LV.5) according to which its width ranges from 33 to 50 cubits; it is the lord of the *prāsādas* and is built by a Kṣatriya alone, its *sthapati* or architect being a Vaiśya or a Brāhmaṇa (*Ib.* LV.36, 39). Some references to Meru are to be found in mediaeval inscriptions. The Kalacuri ruler Yaśaḥkarṇa is said to have built at Kāśī the temple Karṇameru proclaiming his great fame, resembling 'the circle of waves of the milk-ocean' and being so lofty as to lessen 'the fatigue of the multitudes of the celestial damsels playing in the sky, with the breezes of the flags waving from

1. तत्र षडश्रिर्मेरुर्द्वादशभौमो विचित्रकुहरश्च ।
द्वारैर्युतश्चतुर्भिर्द्वात्रिंशद्धस्तविस्तीर्णः ॥

LV.20.

Kāśyapa as quoted by Utpala adds that Meru should be crowned by round finials :—द्वात्रिंशद्धस्तविस्तीर्णं चतुर्द्वारं षडश्रिकम् ।
भूमिकास्तत्र कर्त्तव्या विचित्रकुहरान्विताः ॥
द्वादशोपयुपरिगा वर्तुलाण्डैः समायुताः ।
प्रासादो मेरुसंज्ञः स्यान्निर्दिष्टो विश्वकर्मणा ॥

According to Utpala *kuhara* denotes internal windows on the walls of the *garbhagṛha*:—*vicitrā nānāprakārā abhyantaragavākṣās= tatra bhavanti*. In the Gupta temples provided with processional path the larger covered chambers are lighted by a trellis or trellises in each of the three side walls, but in the Nachna example the *garbhagṛha* is also lighted by two trellises in two side walls (*Classical Age*, p. 502). Though Gupta temples with only one upper storey, e.g., Parvati temple at Nachna (*Classical Age*, Pl. XI, fig. 22) and Lad Khan temple at Aihole (*Ib.* Pl. XII, fig. 24), are known to us, there is no reason to doubt the existence of 12-storeyed structures described in our work.

Stella Kramrisch (*op. cit.*, pp. 271-72) thinks that *asra* means here 'a side or face and not an angle', and that the ground-plan of Meru and the next four structures is not hexagonal but it has six faces, for each of their three sides has a central buttress which is set off from the wall, its face running parallel to that of the wall. According to her, this six-faced form was evolved only recently, and consequently it had the greatest importance at the time when the *BS* was composed.

2. *IA*, XXVI (1897), p. 164, fn. 11.

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its golden spires.'[1] Gāṅgeyadeva is stated to have 'made this earth,...though situated below, soar higher than heaven which is an abode of gods, by constructing a matchless Meru.'[1a] A temple called Karṇameru Prāsāda at Anhilwad built by the Caulukya king Karṇa of Gujarat is mentioned by Merutuṅga in his *Prabandha-cintāmaṇi*. The *Prabhāvaka-carita* also refers to a Śiva temple called Siddhameru.[2]

2. *Mandara* is a six-faced temple 30 cubits (45 feet) in width, having 10 storeys and cupolas (*Triṁśaddhast-āyāmo daśabhaumo Mandaraḥ śikhara-yuktaḥ*, LV.21).

3. *Kailāsa* is the name given to a temple hexagonal in shape, twenty-eight cubits (42 feet) wide and having eight storeys and turrets (*Kailāso=pi śikharavān aṣṭāviṁśo=ṣṭabhaumaś=ca*).[3]

4. *Vimāna*, besides being one of the most common words denoting a temple, signifies a special class of six-sided temples 21 cubits in width and provided with latticed windows (*Jāla-gavākṣaka-yuktaḥ Vimānasaṁjñas=tri-saptak-āyāmaḥ*, LV. 22.). Varāhamihira is silent about the number of storeys, but Kāśyapa gives it as eight.[4]

5. *Nandana*, like Meru, is six-sided and 32 cubits wide and has six storeys and sixteen cupolas (*Nandana iti ṣaḍ-bhaumo dvātriṁśaḥ ṣoḍaś-āṇḍa-yutaḥ*). This is the last in the series of six-sided temples.

1. कनकशिखरवेल्लद्वैजयन्तीसमीरगलपितगगनखेलत्खेचरीचक्रखेद : ।
किमपरमिह काश्यां यस्यदुग्धाब्धिवीचीवलयबहलकीर्त्तेः कीर्त्तनं कर्णमेरुः ॥
EI, XII, p. 212; *CII*, IV. pp.293, 303-304.

1a. निर्जित्योर्जितगर्व्वपर्व्वतभृतः प्रत्यर्थिपृथ्वीभुजः ।
प्राप्तानन्तयशा बभूव नृपतिर्गाङ्गेयदेवस्ततः ।
पृथ्वी येन विधाय मेरुमतुलं कल्पद्रुमेणार्थिनां
स्वर्गादूर्द्ध्वमधः स्थितापि विबुधाधारेयमापादिता ॥
EI, II, pp. 11, 15; *CII*, IV, pp. 315, 318.

2. *IA*, 1897, p. 164, fn. 11.

3. Cf. Kāśyapa cited by Utpala :—
अष्टभौमश्च कैलासो हस्ताष्टाविंशतिः स्मृतः ।
षडश्रिः शिखरोपेतः प्रासादस्तु तृतीयकः ॥

4. गवाक्षजालसंयुक्तो विमानश्चैकविंशतिः ।
षडश्रिरष्टभौमश्च प्रासादः स्याच्चतुर्थकः ॥

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6. *Samudga*, as indicated by the name, is circular in shape and resembles green gram and, like the next type, is provided with a single storey and spire (*śṛṅga*) and is only eight cubits wide. *Śṛṅga* is the same as *śikhara* but has no storeyed superstructure.

7. *Padma* is a suggestive name connoting a temple shaped like eight lotus petals. In all other details it resembles Samudga (*vṛttaḥ Samudganāmā Padmaḥ padm-ākṛtiḥ śayā aṣṭau, Śṛṅgeṇ-aikena bhaved=ek-aiva ca bhūmikā tasya*, LV.23. Cf. Utpala: *Padmaḥ padm-ākṛtiḥ kamal-ākāraḥ aṣṭabhir=dalair=yuktaḥ*).

8. *Garuḍa* is a meaningful name which denotes a structure resembling a *garuḍa* bird, i.e., provided with architectural members very similar in appearance to the wings and tail of this bird. It is twenty-four cubits in width, has seven storeys and twenty *aṇḍas* or *āmalakas* (LV.24). According to the *Viṣṇudharmottara*, it is a rectangular building.[1]

9. *Nandivardhana* is shaped like Garuḍa, but is devoid of wings and tail. Like Garuḍa, it is twenty-four cubits wide and has seven storeys and twenty *aṇḍas*.[2]

10. *Kuñjara* is shaped like an elephant's back, 16 cubits all round at the bottom, and has only one storey and a roof with three *candraśālās*.[3] It refers to the apsidal plan and barrel-vaulted structure which is very rare in the galaxy of Hindu devotional buildings. However, it is illustrated by the Durgā temple at Aihole and the brick temples of Kapoteśvarā

1. Kramrisch, *op. cit.*, Vol. II, p. 414.

2. गरुडाकृतिश्च गरुडो नन्दीति च षट्चतुष्कविस्तीर्णः ।
कार्यस्तु सप्तभौमो विभूषितोऽण्डैस्तु विंशत्या ॥ LV.24.

Cf. Utpala :—गरुडाकृतिर्गरुडाकारः पक्षी पक्षपुच्छयुक्तः । . . . नन्दिवर्धनसंज्ञश्च गरुडाकार एव किन्तु पक्षपुच्छरहितः ।
and Kāśyapa cited by Utpala :—

गरुडो गरुडाकारः पक्षपुच्छविभूषितः ।
नन्दी तथाकृतिर्ज्ञेयः पक्षादिरहितः पुनः ॥
कराणां षट्चतुष्कास्तु विस्तीर्णौ सप्तभूमिकौ ।
दशभिर्द्विगुणैरण्डैर्भूषितौ कारयेत् तु तौ ॥

3. *Candraśālā* is a gabled chamber on or above the *kapota* or the gable window itself, in the latter case *candraśālā* being an abbreviation of *candraśālā-*

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at Chezerla[1] and of Trivikrama at Ter which were adjusted for the purpose of Brāhmaṇical worship by introducing certain devices. A beautiful illustration of the Gaja-pṛṣṭha or elephant-back-shaped structure is to be seen in the *rathas* of Nakula and Sahadeva at Māmallapuram.[2]

11. *Guharāja*, as indicated by the name and pointed out by the commentator, is shaped like a cave (*Guharājo guh-ākāraḥ*). It measures 16 cubits and its roof is provided with three *candraśālās*.[3]

12. *Vṛṣa* is circular all round and twelve cubits wide and has only one storey and one turret (*Vṛṣa ekabhūmi-śṛṅgo dvādaśa-hastaḥ samantato vṛttaḥ*, LV.26).

13. *Haṁsa* is shaped like a swan, i.e., with beak, wings and tail (*Haṁso haṁs-ākāraḥ, ib.* Cf. Utpala :—*haṁsa-sadṛśaḥ cañcu-pakṣa-puccha-yuktaḥ*). It has one storey and one turret, its breadth being 16 cubits.

14. *Ghaṭa* is shaped like a pitcher, is 8 cubits wide, and has one storey and one turret (*Ghaṭo = ṣṭa-hastaḥ kalaśa-rūpaḥ, ib.*).

15. *Sarvatobhadra* is 26 cubits wide and has four entrances (one in each quarter), many spires, *candraśālās* and five storeys.[4] Utpala tells us that it is square (*caturasra*) in plan. It is clearly stated in a verse of Kāśyapa quoted by him.[5]

vātāyana. Coomaraswamy points out that *gavākṣa* in the *Raghuvaṁśa* VII.11 & XIX.7 is synonymous with it and is the same as modern *jharokhā*, Coomaraswamy, Indian Architectural Terms, *JAOS*, XLVIII (1928), pp. 253-54. Utpala takes it to be synonymous with *kuhara* meaning window:—*anayor = dvayor = api valabhī kuharaiś = candraśālā bhavet.*

1. *Classical Age*, p. 497, fig. 19.
2. *JAOS*, 1928, p. 259 and plate facing it.
3. कुञ्जर इति गजपृष्ठः षोडशहस्तः समन्ततो मूलात् ।
   गुहराजः षोडशकस्त्रिचन्द्रशालः भवेद्वलभी ।। LV.25.
4. द्वारैर्युतश्चतुर्भिर्बहुशिखरो भवति सर्वतोभद्रः ।
   बहुरुचिरचन्द्रशालः षड्विंशः पञ्चभौमश्च ।। LV.27.
5. तथा च काश्यपः
   शिखरैर्बहुभिर्युक्तश्चतुर्द्वारविभूषितः ।
   रुचिरैश्चन्द्रशालैश्च बहुभिः परिवारितः ।।
   चतुरस्रः पञ्चभौमः षड्विंशद्धस्तविस्तृतः ।
   सर्वतोभद्र इत्युक्तः प्रासादो दशपञ्चमः ।।

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Very few Brāhmaṇical temples are provided with entrances in the four quarters,[1] whereas Jaina shrines as a rule have openings on all the four sides. In the Karkala inscr. of Bhairava II, a Tribhuvana Jina Caityālaya having four faces is styled Sarvatobhadra.[2] It has been suggested by K.N. Dikshit that a four-faced (*caturmukha*) Jaina temple on the spot or in the immediate vicinity might have furnished the barest outline of the main temple at Paharpur in Bengal.[3] S.K. Saraswati thinks that this imposing structure, measuring 356′ 6″ from north to south and 314′ 3″ from east to west, agrees in general with the Sarvatobhadra of Varāhamihira.[4] But the temple, as it is, does not agree either with the description given in our text or with that in the *Matsya-purāṇa*, according to which it should have five storeys, 16 corners with various shapes and art-galleries (*citra-śālā*) and should be 30 cubits in width.[5]

16. *Siṁha*, single-storeyed, 8 cubits in width and dudecagonal in plan, is decorated with the figures of lions.[6]

17-20. As indicated by their names, *Vṛtta* is circular ; *Catuṣkoṇa*, square; *Soḍaśāśri*, 16-sided ; and *Aṣṭāśri*, octagonal. They are all single-storeyed and, with the exception of Caturasra (which has 5 crowning *aṇḍas*, one in the middle and one each on four corners), are provided with one *aṇḍa* each. They are dark in the interior.[7] We are told by the commentator that walls should be built all round so as to leave a dark passage between them and the *garbhagṛha* and that the door should be placed on the west so that when one enters the *prāsāda*, it should be to one's left. The image should be of jewels so that it may

1. Kramrisch thinks that the niches or *rathikābimbas* on the side walls serve the purpose behind the doors.

2. *EI*, VIII, pp. 132, 135; P.K. Acharya, *Dictionary of Hindu Architecture*, p. 625.

3. *Excavations at Paharpur*, *MASI*, No. 55 (1938), p. 7.

4. *The struggle for Empire*, p. 639.

5. *Matsya-purāṇa*, CCLXIX, 29, 34, 35, 48, 53; Acharya, *Dictionary*, p. 408.

6. सिंहः सिंहाक्रान्तो द्वादशकोणोऽष्टहस्तविस्तीर्णः LV.28.
Cf. Kāśyapa :—सिंहः सिंहसमाक्रान्तः कोणैर्द्वादशभिर्युतः ।
विष्कम्भादष्टहस्तः स्यादेका तस्य च भूमिका ॥

7. चत्वारोऽञ्जनरूपाः पञ्चाण्डयुतस्तु चतुरस्रः । LV.28.

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illumine the *garbhagṛha*. The outer walls should be so cut as to look as originating from the main building (*prāsāda*) and not detached from it, i.e., outer walls end at a lower level than those of the *prāsāda* and are connected with it by means of a roof.[1] The Śiva temple at Bhumara illustrates the Catuṣkoṇa shrines of this type; the Lad Khan, Konti-Gudi and Meguti temples at Aihole and the temple at Nachna which could also serve as examples, however, have a storeyed superstructure. The Muṇḍesvarī temple on the summit of a hill, about 600 feet high, close to Ramgarh in Orissa, is a fine example of an octagonal temple both inside and outside, but without an ambulatory passage.[2] Soḍaśāśri or 16-faced temples are extremely rare.[3]

It would appear from what has been said so far that many of the temple-types described above cannot be properly illustrated from the extant remains. Many structures illustrating these types must have perished. As these types are also mentioned in some other works, e.g., *Matsya-purāṇa*, *Viśvakarma-prakāśa*, *Bhaviṣya-purāṇa*, it seems very likely that Varāhamihira based his account on the monuments existing in his time.

1. एते अञ्जनरूपा अव्यक्तरूपाः सान्धकारा इत्यर्थः । बाह्यप्राकाश्यं तेषु न प्रविशत्ययमर्थः । देवप्रासादस्य सन्निकृष्टाश्चतसृष्वपि दिक्षु भित्तीः कृत्वा प्रासादस्य पश्चिमभागे द्वारं कार्यम् । ताश्च भित्तय ऊर्ध्वभागे तथा छेदनीया यथा प्रासादोत्पन्ना एव लक्ष्यन्ते न पृथक्स्थाः । तत्र बहिर्द्वारात् प्रविश्य प्रासादस्य वामभागेनागत्य पुरतः प्रासादस्य द्वारं कार्यम् । तत्र मणिमयी प्रतिमा तत्कान्त्या यत्र प्राकाश्यमुत्पद्यते ।

2. *List of Ancient Monuments in the Provinces of Bihar and Orissa*, (*ASI, NIS*, Vol. LI (1931), p. 143. The Śiva temple (popularly known as Śaṅkarācārya temple) on Takht-i-Suleman at Srinagar consists of a single chamber built on an octagonal basement. The plan of the sanctum is octagonal (square with a double projection on each side), the interior being circular, cf. *ASI, AR*, 1915-16, p. 72, Pls. XLIV-XLVa; Stella Kramrisch, *op. cit.*, I, p. 272, fn. 68.

3. However, externally the plan of the small temple at Paraoli in Kanpur and at Kurari in Fatehpur District of Uttar Pradesh must have been a 16-sided polygon, the cella being circular in shape, see *ASI, AR*, 1908-09, pp. 17, 20, fig. 6.

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III

SCULPTURE, MUSIC, PAINTING

I. *Sculpture*

Like architecture, sculpture had reached a highly advanced state by the time of our author. The popularity of the practice of image-worship provided a great stimulus to the image-making activities of the sculptor. Varāhamihira furnishes us with valuable information regarding sculptural material and iconometric proportions.

MATERIALS. Special reference must be made in this connection to the Vanasampraveśādhyāya (Ch. LVIII), which contains details about procuring timber for fashioning various images. First, at an auspicious moment the sculptor went to the forest. Forbidden was the timber of the trees that grow on a cremation ground, by the road-side, near a temple, on anthills, in parks and penance groves, of *caitya-vṛkṣas*, of those growing at the confluences of rivers, and nurtured with great care (literally irrigated by jars full of water), bent ones, growing very close to other trees, overgrown with creepers, of those that are damaged by lightning, storm or an elephant, of those that have fallen by themselves or are dried and burnt by fire, and of those that contain bee-hives (LVIII.1-4). Next we are told what trees were to be used in fashioning images or a *liṅga* by the members of the different castes. Thus *devadāru*, sandalwood, *śamī* and *madhūka* are recommended for the images made by a Brāhmaṇa; *ariṣṭa*, *aśvattha*, *khadira* and *bilva* for those installed by a Kṣatriya ; *jīvaka*, *khadira*, *sindhuka* and *syandana* for those set up by a Vaiśya ; and *tinduka*, *kesara*, *sarja*, *arjuna*, *āmra* and *śāla* for those established by a Śūdra.[1] Before a tree thus selected was cut down, certain rites were to be performed. The sculptor marked off the various sections, top and bottom of the trunk so that the sections, top and bottom of an image or *liṅga*

1. LVIII.5-6. An identical list is supplied by Kāśyapa as cited by Utpala.

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might correspond to those of the tree.[1] A verse of Kāśyapa as quoted by Utpala contains the same direction.[2] That this direction was followed in practice would appear from its mention in the *Viṣṇudharmottara* (BK. III, Ch. 89) and other works. Next at night the sculptor propitiated the tree, gods, manes, Piśācas, Rākṣasas, Nāgas, Asuras, Gaṇas, Vināyakas and others (Utpala adds Bhūtas, Pretas, Siddhas, Vidyādharas and Gandharvas), and touching the tree recited a *mantra* asking the spirits haunting the tree to leave it and change their habitation (LVIII.8-11). Next morning he sprinkled the tree with water and cut it with an axe greased with honey and clarified butter beginning on the north-eastern side and keeping it to his right (LVIII.12).[3]

CLASSIFICATION. Varāhamihira divides images and *liṅgas* into seven categories on the basis of the materials from which they were fashioned:—1. *dārumayī* (wooden), 2. *mṛṇmayī* (clay), 3. *maṇimayī* (from precious stones), 4. *sauvarṇī* (golden), 5. *rajatamayī* (silver), 6. *tāmramayī* (copper), and 7. *śailī*

1. लिंगं वा प्रतिमा वा द्रुमवत् स्थाप्या यथादिशं यस्मात् ।
तस्माच्चिह्नयितव्या दिशो द्रुमस्योर्ध्वमथ वाऽध: ॥
LVIII.7.

Cf. Utpala—अयमर्थ: । द्रुमस्य य: पूर्वाभिमुखो भाग: स एव प्रतिमाया: पूर्वभाग: कार्य: । एवं दक्षिणो दक्षिण: । पश्चिम: पश्चिम: । उत्तरभाग उतरभाग एव कार्य: । वृक्षस्य योऽधो भाग: स एव प्रतिमाया अधोभाग: कार्य: । वृक्षस्य य ऊध्वभाग: सोऽपि प्रतिमाया ऊर्ध्वभाग: कार्य: । तस्माद्धेतोर्द्रुमस्य वृक्षस्य दिश आशाश्चिह्नयितव्या: । एवमूर्ध्वाधरौ भागावपि चिह्नयितव्यौ ।

2. तथा च काश्यप:
वृक्षवत् प्रतिमा कार्या प्राग्भागाद्युपलक्षिता ।
पादा: पादेषु कर्त्तव्या: शीर्षमूर्ध्वे तु कारयेत् ॥

3. Some omens were inferred from the direction in which a tree fell. Thus, while a tree falling in the east, north-east or north was taken to augur prosperity, that falling in the south-east, south, south-west, west or north-west foretold outbreak of fire, disease and ruin to the horses, cf. LVIII. 13; XLII.19-20; LII.120.

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(stone).[1] With slight modifications this classification is found in the *Matsya-purāṇa*, *Śukra-nītisāra* (IV.4.72) and *Samarāṅgaṇa-sūtradhāra* also.[2] It is noteworthy that in the above list wooden images come first and it is this material to which one full chapter is devoted. The procedure of selecting wood for images is also described in the *Matsya-purāṇa* (Ch. 257), *Viṣṇudharmottara* (Bk. III, Ch. LXXXIX) and *Bhaviṣya-purāṇa* (Brahmaparvan, Ch. 131) also. This indicates that at an early period perishable materials like wood and clay were principally employed in fabricating images which could not survive the long passage of time, particularly in the tropical weather of India. As suggested by Dr. J.N. Banerjea,[3] like early architectural remains, extant early stone sculptures in the round and relief-carvings may have been influenced by their wooden prototypes with regard to the form and technique.

It is interesting to note that from very early times different materials were considered to be especially appropriate for the images of certain divinities. Thus copper,[4] crystal,[5] sandalwood,[6] shell or iron,[7] gold[8], silver,[9] iron,[10] nāga (?),[11] and bronze[12] are prescribed for the images of the Sun, Moon, Mars,

1. आयुः श्रीबलजयदा दारुमयी मृण्मयी तथा प्रतिमा ।
लोकहिताय मणिमयी सौवर्णी पुष्टिदा भवति ॥
रजतमयी कीर्तिकरी प्रजाविवृद्धिं करोति ताम्रमयी ।
भलाभं तु महान्तं शैली प्रतिमाऽथवा लिंगम् ॥
LIX.4-5.

2. G.O.S., Vol. II, I.1.

3. *DHI*, pp. 211-12; *Proceedings of Indian History Congress*, 3rd Session, pp. 176-184.

4. *YY*, VI.4; *BY*, XVIII.3-5.

5. *BY*, XVIII.6-8.

6. *BY*, XVIII.9-10. According to *YY*, VI.9, however, it should be made of *rudhirākhya-maṇī*.

7. *BY*, XVIII.11-13. According to *YY*, VI.17, it should be fashioned from gold.

8. *BY*, XVIII.14-15. *YY*, VI.18 prescribes *vimalaka-maṇī* for Bṛhaspati's image.

9. *BY*, XVIII.16-17. But cf. *YY*, VI.7 (*citra*).

10. *BY*, XVIII.18-20. *YY*, VI.13 prescribes blue glass (*nīla-kāca*).

11. *BY*, XVIII.21-22. The meaning of '*nāga*' is not clear. According to *YY*, VI.11, Rāhu should be fashioned from *devadāru* wood.

12. *BY*, XVIII.23-4.

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Mercury, Jupiter, Venus, Saturn, Rāhu and Ketu respectively.[1] Similarly, wood or gold, iron, silver, white clay, gold and cow's skin were regarded as particularly suited to the figures of Indra, Yama, Varuṇa, Vāyu, Kubera and Śiva respectively.[2]

II. *Iconometry*

Ancient Indian writers on sculpture insisted on a strict adherence to the prescribed proportions in representing a deity, whether anthropomorphically or symbolically. Our author devotes a major portion of the Pratimālakṣaṇādhyāya (Ch. 57) to this topic. Before we give a table of proportions and quote and annotate the original, it is necessary to make some preliminary remarks.

The unit of measurement adopted by Varāhamihira in giving various proportions is *aṅgula*. Besides the absolute *aṅgula* based on the thickness of certain natural objects noticed above,[3] *aṅgula* as a relative unit was also known and used mainly in measuring images. The latter was obtained by dividing the entire height of a given image into 120, 108, etc., equal parts, each being called an *aṅgula*. This is the same as the *dehalabdhāṅgula* or *dehāṅgula* described in the later Āgamaic works.[4] Referring to an image measuring 108 *aṅgulas* in height, Varāhamihira lays down that the length and width of the face of an image should be 12 *aṅgulas* of its own (*Svair = aṅgula-pramāṇair = dvādaśa vistīrṇam = āyataṁ ca mukham*, LVII. 4). Commenting on this line, Utpala says that the whole height of the block of timber or stone from which an image is to be fashioned, leaving aside the portion of pedestal, should be divided into twelve equal parts, each of which should again be subdivided into nine equal parts known as *aṅgulas*; thus an image consists of 108 *aṅgulas* of its own.[5] It is significant that another relative *aṅgula*

1. Cf. *Yājñavalkya-smṛti*, I.296-298. Also *BJ*, II.12, which ascribes copper, precious stones, gold, alloy of metals, silver, pearls and iron to the seven planets beginning with the sun.
2. *YY*, VI.4, 8, 12, 14, 16, 18.
3. See *supra* p. 342.
4. T.A. Gopinatha Rao, *Tālamāna or Iconometry*, *MASI*, No. 3, p. 38.
5. यस्मात् काष्ठात् पाषाणादिकाद्वा प्रतिमा क्रियते तद्दैर्घ्यं पीठप्रमाण-

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called *mātrāṅgula*, which is taken to be equal to the length of the middle digit of the middle finger either of the sculptor, or of the architect, or of the rich devotee who causes an image to be set up,[1] is unknown to Varāhamihira.

The exception made by him in the case of Rāma, the son of Daśaratha, and Bali, the son of Virocana, the height of whose images is fixed at 120 *aṅgulas*, shows that the images measuring 108 *aṅgulas* of their own height were most common in the Gupta period. He classifies images (other than those 120 *aṅgulas* in height) as the best (*pravara*), medium (*sama*) and inferior (*nyūna*), each being twelve *aṅgulas* less in height than the preceding one. Thus images measuring 108, 96 and 84 *aṅgulas* are grouped as the highest, middlemost and lowest respectively.[2] They correspond to *navatāla*, *aṣṭatāla* and *saptatāla* images respectively described in such late texts as the *Vaikhānasāgama*, *Karaṇāgama* and others. But curiously enough, the word *tāla* is mentioned neither by Varāhamihira nor by Utpala, who measure the entire height in terms of the unit *aṅgula*. This shows that *aṅgulas* was the prevailing unit of measure and although a larger unit consisting of 12 *aṅgulas* was known, it was not called *tāla* and that *tāla* as the name of a larger unit was unknown. It further shows that the *tāla* measure along with the images of fluctuating heights, e.g., *Uttama-daśa-tāla* (124 *aṅgulas*), *Madhyama-daśa-tāla* (120

विवर्जितं द्वादशभागविभक्तं कृत्वा तत्रैको भागो नवधा कार्यः सोऽङ्गुलसंज्ञा भवति। यस्माच्छताधिकमङ्गुलशतं प्रतिमाप्रमाणं वक्ष्यति, स्वैरङ्गुलप्रमाणैरिति।

1. *MASI*, No. 3, p. 38. The *Śukranītisāra* gives another manner of obtaining *mātraṅgula*. It is one-fourth of one's own fist (*Svasyamuṣṭeś=caturtho='ṅśo hy=aṅgulaṁ parikīrtitam*, IV.4.82.

2. दशरथतनयो रामो बलिश्च वैरोचनिः शतं विंशम्।
द्वादशहान्या शेषाः प्रवरसमन्यूनपरिमाणाः ॥
LVII.30.

Cf. Utpala—शेषा अन्याः प्रतिमा द्वादशहान्या द्वादशकद्वादशकहीनत्वेन प्रवरसमन्यूनपरिमाणा भवन्ति। विंशत्यधिकादङ्गुलशताद्द्वादशाङ्गुलान्यपास्याष्टाधिकं शतमङ्गुलानां प्रतिमा प्रधाना भवति। ततोऽपि द्वादशकमपास्य षण्णवत्यङ्गुलसंज्ञा मध्यमा भवति। ततोऽपि द्वादशकमपास्य चतुरशीत्यङ्गुलान्यूनपरिमाणा प्रतिमा भवति। स्वैरङ्गुलप्रमाणैर्द्वादशविस्तीर्णमायतं च मुख-

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aṅgulas), *Adhama-daśa-tāla* (116 *aṅgulas*) was a late introduction in the iconometric art of India.[1]

As gods were usually conceived in human form, it is quite natural that their images should correspond to the height of men. We are not disappointed in our enquiry: The heights ascribed to the first two varieties of images (best and medium measuring 108 and 96 *aṅgulas*) are actually borrowed from the same of the Mālavya and Haṁsa,[2] two of the five great men in whose existence Indians believed from very ancient times.

A higher unit of measure employed in measuring the height of an image was *hasta*. Thus our author states that an image 1 *hasta* high is auspicious ; that 2 *hastas* in height bestows wealth ; and those 3 or 4 *hastas* high tend to ensure welfare and affluence.[3] These dimensions appear to have been meant only for the images installed in temples, those enshrined in a household chapel being much smaller.[4]

The height of an image intended to be installed in a temple depended on that of the shrine-door. According to Varāha-mihira, the height of the shrine-door less by 1/8th should be divided into three parts, one part giving the height of the

मित्यनेन न्यायेन या प्रतिमोक्ता साऽष्टाङ्गुलं शतमधिकं भवति यदत्रोक्तं दशरथतनयो रामो बलिश्च वैरोचनिः शतं विंशमित्यस्मिन् द्वादशानामङ्गुलानामधिकानां तैरधिकेन परिमाणः कार्यः सर्वावयवानाम् । एवं हीनत्वेऽप्यनुपात एवेत्यनुक्तं ज्ञायत इति ।

1. The *tāla* and its variations are typically late and South Indian in origin. If this is taken as a criterion of relative chronology of iconometric texts, sections of the *Matsya-purāṇa* (CXLV. 10; CCLIX. 1-2) and *Śukranītisāra* (IV. 4. 85 ff) dealing with sculpture and architecture must be later than *BS*.

2. LXVIII.7. See *supra* pp. 365, 366.

3. सौम्या तु हस्तमात्रा वसुदा हस्तद्वयोच्छ्रिता प्रतिमा ।
क्षेमसुभिक्षाय भवेत् त्रिचतुर्हस्तप्रमाणा या ॥
LVII.49.

4. According to the *Matsya-purāṇa*, an image installed in a house should measure between a digit of the thumb and a *vitasti* (a span, 12 *aṅgulas*)—

Aṅguṣṭhaparvādi=ārabhya vitastiṁ yāvad=eva tu,
Gṛhe vai pratimā kāryā n—ādhikā śasyate buhaiḥ.
CCLVIII.22.

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pedestal (*piṇḍikā*) and the remaining two, that of the image.[1]

In the art tradition of India, the same ornaments and dress were shown on divine images as on human figures. Varāhamihira simply voices this fact when he says that an image should be provided with the equipment, apparel, ornaments and form corresponding to the same of the country (to which the image belongs) and that an image possessing required characteristics bestows opulence by its very presence.[2] Much stress was laid on giving the image a beautiful appearance. Thus an image endowed with excessive or undersized limbs, thin belly and lean body, an abrasion, and the eyes turned upward or downward was believed to have disastrous effects. That the frontal pose of representing a deity was considered to be the best would appear from the statement that an image leaning to the left or right destroys its maker's wife or life.[3]

1. द्वारभानाष्टभागोना प्रतिमा स्यात् सपिण्डिका ।
द्वौ भागौ प्रतिमा तत्र तृतीयांशश्च पिण्डिका ।।
LV.16.

देवागारद्वारस्याष्टांशोनस्य यस्तृतीयोंऽशः ।
तत्पिण्डिकाप्रमाणं प्रतिमा तद्द्विगुणपरिमाणा ।।
LVII.3.

Cf. Kāśyapa quoted by Utpala on LV.16 (p. 759) :—
देवं सपिण्डिकं स्थाप्यं द्वाराष्टं शोभितं शुभम् ।
द्वौ भागौ प्रतिमा कार्या तृतीयश्चैव पिण्डिका ।।

2. LVII.29. Cf. Kāśyapa, quoted on p. 778.

3. नृपभयमत्यङ्गायां हीनाङ्गायामकल्यता कर्तुः ।
शातोदर्यां क्षुद्भयमर्थविनाशः कृशाङ्गायाम् ।।
मरणं तु सक्षतायां शस्त्रनिपातेन निर्दिशेत् कर्तुः ।
वामावनता पत्नीं दक्षिणविनता हिनस्त्यायुः ।।
अन्धत्वमूर्ध्वदृष्ट्या करोति चिन्तामधोमुखी दृष्टिः ।
सर्वप्रतिमास्वेवं शुभाशुभं भास्करोक्तसमम् ।।
LVII.50-52.

Cf. last three verses of Kāśyapa quoted on p. 786.

Cf. also LIX.6: —image containing wedge or hole...and Kāśyapa quoted on it.

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A table of measurements based on verses 4-28 of Ch. 57 is given below :—

The limb measured	Measurements in its own *aṅgulas*
The breadth and length of the face ...	12
	But according to the Drāviḍa measurement given by Nagnajit, the length should be 14 *aṅgulas*.[1]
The length of the nose, forehead (vertical), chin (*cibuka*) and neck, each ...	4
The breadth of the two jaws (*hanu*)[2] and the chin (*cibuka*)[3]	2
The breadth of the forehead (horizontally) ...	8
The temples to be shown 2 *aṅgulas* further off from the forehead, their downward length being	4
The breadth of the ears[4]	2

1. स्वैरङ्गुलप्रमाणैर्द्वादश विस्तीर्णमायतं चं मुखम् ।
नग्नजिता तु चतुर्दश दैर्घ्येण द्राविडं कथितम् ।

Utpala quotes Magnajit : तथा च नग्नजित् :—

विस्तीर्णं द्वादश मुखं दैर्घ्येण च चतुर्दश ।
अङ्गुलानि तथा कार्यं तन्मानं द्राविडं स्मृतम् ॥

2. LVII.5. Utpala understands *hanu* as 'the two joints of the face and the neck'—*mukha-gala-sandhī hanunī*. T.A.G. Rao (*Tālamāna or Iconometry*, *MASI*, No. 3, p. 77, Col. 3) renders *hanu* by 'chin', which is unwarranted. Similarly, he gives 'the distance between the tip of the chin from the neck' as 2 *aṅgulas* (*ibid*), which is not mentioned in the text or commentary.

3. Utpala's explanation of the word *cibuka* is not clear. First, he says that 'the portion of the nose measuring four *aṅgulas* is known as *cibuka*, and next that 'the portion below the mouth is indicated by the word *cibuka*':—*cibuka-grahaṇena nāsāyāś=catur=aṅgulo bhāga ucyate.....cibuka-śabden-ātra mukhasy-ādhobhāga ucyate.*

4. अष्टाङ्गुलं ललाटं विस्ताराद् द्व्यङ्गुलात् परे शङ्खौ ।
चतुरङ्गुलौ तु शङ्खौ कर्णौ तु द्व्यङ्गुलौ पृथुलौ ॥ LVII.6.

Cf. Utpala—शङ्खौ चतुरङ्गुलावधोभागौ दीर्घौ कार्यौ यतः शङ्खाधो गण्डभाग उच्यते ।

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The limb measured	Measurements in its own *aṅgulas*
The upper margin of the ear should be done on the same level with the eye-brow, the distance between the extreme corner of the eye and the top end of the ears being[1]	... $4\frac{1}{2}$ But according to Vasiṣṭha, the distance between the outside end of the eye and the ear should be 4 *aṅgulas*.[2]
The ear-hole and the raised tip of the flesh near it called *sukumāraka* should be made in the same line with the rheum of the eye, their extent being each[3]	... 1

1. This is based on the joint authority of Varāhamihira and Utpala :—
कर्णोपान्तः कार्योऽर्धपञ्चमे भ्रूसमेन सूत्रेण । LVII.7.

Utpala—सार्धानि चत्वार्यङ्गुलानि नेत्रान्तादारभ्य तस्मिन् भ्रूसमेन सूत्रेण नेत्रमध्यगेन कर्णोपान्तः कार्यः । कर्णस्योपान्तः समीपः ।

२. चतुरङ्गुलं वसिष्ठः कथयति नेत्रान्तकर्णयोर्विवरम् । LVII.8.

Utpala quotes Vasiṣṭha :— तथा च वसिष्ठः । कर्णनेत्रान्तरं यच्च तद्विन्द्याच्चतुरङ्गुलम् There is a slip in T.A.G. Rao's table—he mentions Vasiṣṭha, but not the figure 4. There is also a slip in Kern's translation, 'the space between the extreme eye-corner and eyes, at 4 digits, (*JRAS*, 1873, p. 324). J.N. Banerjea (*DHI*, p. 583) renders this line as follows: 'Vasiṣṭha says that (the space) between the extreme corner of the eye and ear-hole (near it) is 4 *aṅgulas*'. It is defective: he seems to take '*vivaram*' as qualifying '*karṇayoḥ*', both these words giving him the meaning 'ear-hole'. But '*vivaram*' here is actually an adjective of '*catur=aṅgulam*' and denotes 'the distance' or 'intervening space'. Had it been properly understood, the phrase 'the space' would not have been bracketed. Similarly '(near it)' gives no sense. The correct translation then should be, 'Vasiṣṭha says 4 *aṅgulas* to be the space between the extreme outside end of the eye and the ears.'

3. कर्णस्रोतः सुकुमारकं च नेत्रप्रबन्धसमम् । LVII.7.

Cf. Utpala—...सुकुमारकं च कर्णस्रोतःसमीपे उन्नतो मार्गस्तन्नेत्रप्रबन्ध-

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The limb measured	Measurements in its own *aṅgulas*
The width of the lower lip	1
The width of the upper lip[1]	½
The width of the dimple above the upper lip	½
The length of the mouth	4
The width of the mouth when closed ...	1½
The width of the mouth when opened[2] ...	3
The extent of the nostrils	2
The height of the nose at the end of the nostrils ...	2
The distance between (the pupils of) the two eyes	4
The length of the sockets of eyes and eyes, each	2
The diameter of the ball of the eye ...	1/3rd of the above.
The diameter of the vision of the pupil ...	1/5th of the eyes.
The width of the eye[3]	1

समम् । नेत्रप्रबन्धशब्देन प्रदूषिकोच्यते । तत्समं तत्तुल्यं कार्यम् । अङ्गुलप्रमाणमित्यर्थः ।

Kern's quotation of the last part of the second sentence, viz., *pramūṣikocyate* (*JRAS*, 1873, p. 324, fn. 1) is faulty. T.A.G. Rao's table omits these proportions.

1. अधरोऽङ्गुलप्रमाणस्तस्यार्धेनोत्तरोष्ठश्च । LVII.8.
2. अर्धा ङ्गुला तु गोच्छा वक्त्रं चतुरङ्गुलायतं कार्यम् ।
   विपुलं तु सार्धमङ्गुलमव्यात्तं त्र्यङ्गुलं व्यात्तम् । LVII.9.
3. द्व्यङ्गुलमितोऽक्षिकोशो द्वे नेत्रे तत्त्रिभागिका तारा ।
   दृक्तारा पञ्चांशो नेत्रविकाशोऽङ्गुलं भवति ॥ LVII.11.

Utpala clearly says that the black-ball of the eye and the vision of the pupil should be 1/3rd and 1/5th of the eye (i.e. of 2 *aṅgulas*) respectively : *tattribhāgikā tārā, aṅguladvaya-tribhāgapramāṇā tārā netramadhye kṛṣṇo bhāgaḥ, dṛktārā madhyavartinī kumārī aṅguladvayapañcāṁśaḥ pañcāṁśo bhāgaḥ.* In face of this express statement, it is difficult to agree with T.A.G. Rao (*op. cit.*' p. 78) who states that the diameter of the pupil should be one-fifth of the black ball, and with Dr. J.N. Banerjea (*DHI*, p. 584) who says that 'the vision of the pupil is 1/3rd (of the ball).'

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The limb measured	Measurements in its own *aṅgulas*
The length of the line of the eye-brows from one end to another	10
The width of the brow	½
The intervening space between the two brows	2
The length of each brow[1]	4
The extent of the hair-line on the forehead...	10
The width of ,, ,, ,, ...	½
The measure of the *karavīraka* (inner corner) of the eye[1a]	1
The periphery of the head	32
The width of the head	14
But it is stated that in a picture only 12 aṅgulas are visible, the remaining 20 *aṅgulas* being invisible.[2] ...	But according to Nagnajit, the face including the full complement of the hair is 16 *aṅgulas* long.[3]
The width of the neck	10
The girth of the neck[4]	21

1. पर्यन्तात् पर्यन्तं दश भ्रुवोऽर्धाङ्गुलं भ्रुवो लेखा।
भ्रूमध्यं द्व्यङ्गुलकं भ्रूदैर्घ्येणाङ्गुलचतुष्कम् ॥ LVII.12.

1a. कार्या तु केशरेखा भ्रूबन्धसमाङ्गुलार्धविस्तीर्णा।
नेत्रान्ते करवीरकमुपन्यसेदङ्गुलप्रमितम् ॥ LVII.13.
Cf. Utpala— करवीरकं दूषिकेति प्रसिद्धम्।

Kern (*JRAS*, 1873, p. 324, fn. 2) observes that 'the inner corner, *karavīraka*, is also called *mūṣikā* in a quotation from *Kāśyapa*, but S. Dvivedi's edition (p. 777) gives the reading *dūṣikā* and not *mūṣikā*.

2. द्वात्रिंशत् परिणाहाच्चतुर्दशायामतोऽङ्गुलानि शिरः।
द्वादश तु चित्रकर्मणि दृश्यन्ते विंशतिरदृश्याः ॥ LVII.14.

3. आस्यं सकेशनिचयं षोडश दैर्घ्येण नग्नजित्प्रोक्तम्। LVII.15.
Cf. Utpala— मुखं दीर्घं चतुर्दशाङ्गुलानि केशरेखा द्वे अङ्गुले एवं षोडश। तथा च नग्नजित्। द्व्यङ्गुला केशरेखैवं मुखं स्यात् षोडशाङ्गुलम्।

4. ग्रीवा दश विस्तीर्णा परिणाहाद्विंशतिः सैका। LVII.15.

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The limb measured	Measurements in its own *aṅgulas*
The interstice between the lowermost part of the throat and the heart, between the heart and the navel, and between the centre of the navel and the penis,—each[1]...	12
The length of the thighs	24
The length of the shanks	24
The length of the patella	4
The height of the feet[2]	4
The length of the feet	12
The width of the feet	6
The length of the great toe	3
The periphery of the great toe ...	5
The length of the second toe (*pradeśinī*)[3]	3
The length of the remaining toes should be 1/8th less in succession	
The height of the great toe[4]	$1\frac{1}{4}$
The measure of the nail of the great-toe...	$\frac{3}{4}$
The measure of the nails of the rest of the toes[5]	$\frac{1}{2}$ or a little less.

1. कण्ठाद् द्वादश हृदयं हृदयान्नाभी च तत्प्रमाणेन ।
नाभीमध्यान्मढ्रान्तरं च तत्तुल्यमेवोक्तम् ॥ LVII.16.

Cf. Utpala...कण्ठाधोभागादारभ्य हृदयं यावत्. . . नाभीमध्यान्मेढ्रान्तरं लिङ्गमध्यं च यावत् ।

2. ऊरू वाङ्गुलमानैश्चतुर्युता विंशतिस्तथा जङ्घे ।
जानुकपिच्छे चतुरङ्गुले च पादौ च तत्तुल्यो ॥ LVII.17.

Utpala tells us that *jānukapiccha* or knee-caps were popularly called *ekkalaka*: *jānukapicche...ye ca loke ekkalake iti prasiddhe, pādau ca tattulyau tatsamau gulphāl=ārabhy-ādhobhāgaś=caturaṅgulaḥ kāryaḥ.*

3. द्वादशदीर्घौ षट् पृथुतया च पादौ त्रिकायताङ्गुष्ठौ ।
पचाङ्गुलपरिणाहौ प्रदेशिनी त्र्यङ्गुलं दीर्घा ॥ LVII.18.

Dr. J.N. Banerjea (*DHI*, p. 585) leaves the middle half of the verse untranslated.

4. अष्टांशाष्टांशोनाः शेषाङ्गुल्यः क्रमेण कर्त्तव्याः ।
सचतुर्थभागमङ्गुलमुत्सेधोङ्गुष्ठकस्योक्त : ॥ LVII.19.

5. अंङ्गुष्ठनखः कथितश्चतुर्थभागोनमङ्गुल तज्ज्ञैः ।
शेषनखानामर्धाङ्गुलं क्रमात् किंचिदूनं वा ॥ LVII.20.

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The limb measured	Measurements in its own *aṅgulas*
The circuit of the shanks at the top-end...	14
The breadth of the same at the same place	5
The breadth of the shanks in the middle...	7
The circuit of the shanks in the middle.[1]...	7 × 3 = 21
The width of the knees in the middle ...	8
The circumference of the same at the same place	8 × 3 = 24
The width of the thighs in the middle ...	14
The circumference of the thighs in the middle[2]	28
The width of the pelvis	18
The circuit of the same	44
The depth of the navel	1
The diameter of the same[3] ...	1
The periphery of the middle part of the body at the centre of the navel ...	42
The interstice between the nipples ...	16
The distance between the paps and the armpits above them in an oblique direction[4]	6
The interstice between the neck and the end of the shoulder	8
The length of the arms	12
The length of the fore-arms	12
The breadth of the arm	6

1. जङ्घाग्रे परिणाहश्चतुर्दशोक्तस्तु विस्तरात् पञ्च ।
मध्ये तु सप्त विपुला परिणाहात् त्रिगुणिताः सप्त ॥ LVII.21.

Dr. J.N. Banerjea's rendering of the first line, 'The circumference of the extreme top of the shanks is said to be 14 *aṅgulas* long and 5 broad' (*DHI*, p. 595), is very ambiguous and gives no sense.

2. अष्टौ तु जानुमध्ये वैपुल्यं त्र्यष्टकं तु परिणाहः ।
विपुलौ चतुर्दशोरू मध्ये द्विगुणश्च तत्परिधिः ॥ LVII.22.

3. कटिरष्टादश विपुला चत्वारिंशच्चतुर्गुता परिधौ ।
अङ्गुलमेकं नाभी वेधेन तथा प्रमाणेन ॥ LVII.23.

4. चत्वारिंशद्द्वियुता नाभीमध्येन मध्यपरिणाहः ।
स्तनयोः षोडश चान्तरमूर्ध्वं कक्ष्ये षडङ्गुलिके ॥ LVII. 24.

Cf. Utpala : स्तनयोरूर्ध्वं तिर्यक् कृत्वा षडङ्गुलिके षडङ्गुलप्रमाणे कक्ष्ये कार्ये ।

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The limb measured	Measurements in its own *aṅgulas*
The breadth of the fore arm[1] ...	4
The circumference of the arms at the top end	16
The breadth of the wrist	12
The width of the palm	6
The length of the palm[2]	7
The length of the middle finger[3] ...	5
The length of the forefinger	Less than the middle finger by half a digit of the latter.
The length of the ring finger	The same as that of the forefinger.
The length of the little finger[4]	Less than the ring-finger by a digit of the latter.

The thumb consists of two digits, while other fingers have 3 digits.
The length and breadth of a nail should be a half of the joint of the finger concerned.[5]

III. *Music and Painting*

VOCAL AND INSTRUMENTAL MUSIC. Varāhamihira shows acquaintance with both vocal (*gīta*,[6] *geya*[7]) and instrumental (*vādya*, *BJ*, XVIII.1; *vādita*, XXXIII.23; *vāditra*, XLIII.

1. अष्टावंसौ द्वादश बाहू कार्यौ तथा प्रबाहू च ।
बाहू षड्विस्तीर्णौ प्रतिबाहू त्वङ्गुलचतुष्कम् ।। LVII.25.
2. षोडश बाहू मूले परिणाहाद् द्वादशाग्रहस्ते च ।
विस्तारेण करतलं षड्ङ्गुलं सप्त दैर्घ्येण ।। LVII.26.

Utpala renders *agrahasta* as *prakoṣṭhadeśa*.

3. It is not mentioned by T.A.G. Rao.
4. पचाङ्गुलानि मध्या प्रदेशिनी मध्यपर्वदलहीना ।
अनया तुल्या चानामिका कनिष्ठा तु पर्वोना ।। LVII.27.
5. पर्वद्वयमङ्गुष्ठः शेषाङ्गुल्यस्त्रिभिस्त्रिभिः कार्याः ।
नखपरिमाणं कार्यं सर्वासां पर्वणोऽर्धेन ।। LVII.28.
6. XXXIII.23; XLV.60; LXXXV.22, 39; C. 12; *BJ*, XIV.4; XVI.12; XVII.3.
7. V.39, 74; X.3; XIX.6; *BJ*, XVIII.1.

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16; LXXXV.22) music and refers to persons favourably inclined towards vocal music (*gītapriya*, C.12; *BJ*, XIV.4; XVI. 12; XVII.3; *geyasakta*, V.39, 74), expert musicians (*gāndharva*, XXXII.11; XV.12; *gāndharvavid*, XVI.17; XIX.10), vocalists (*geyajña*, X.3; XIX.6) and instrumentalists (*vādaka*, X.3). Songs were sung to the accompaniment of musical instruments as the lute, flute and *paṇava* (XIX.18; *YY*, II.19). Sounds produced by singing and musical instruments are contrasted (XXXIII.23; XLV.60; LXXXV.22, 39). We read of the futility of a good lyre for a man with defective voice (*Vyarthā sadoṣasya guṇ-anvit-āpi vīṇ-eva śabd-āśraya-varjitasya*, *YY*, II. 15). Music, instrumental and vocal, played a definite role in religious ceremonials (XLII.24, 26; XLIII.7, 16; XLVII. 49; LIX.10, 16). A band of musical instruments accompanied a military march (XLIII.23; *YY*, XIII.4).

SVARAS AND GRĀMAS. The use of the word *svara* in the sense of 'seven' (XII.14; *PS*, I.15) shows that the standard number of musical notes was recognised to be seven, the first four of which are mentioned by name, viz., Saḍja, Madhyama, Gāndhāra, Ṛṣabha.[1] Indian music is traditionally based on the three *grāmas*. It is held by some that only two of them are named in earlier literature, while the *g- grāma* is mentioned only by mediaeval writers. H.A. Popley, for example, states that *ṣ* (Ṣaḍa) and *m* (Madhyama) *grāmas* are found in the *Nāṭyaśāstra* of Bharata, while the *g-* (Gāndhāra) *grāma* is not mentioned until Ratnākara (c. 1247 A.D.). This statement is not quite correct, for Varāhamihira names all the three *grāmas* (*grāmau madhyama-ṣaḍjau ca gāndhāraś=c-eti śobhanāḥ* LXXXV. 40).

MUSICAL INSTRUMENTS. Varāhamihira alludes vaguely to the beaten instruments in XLV.61 which mentions

1. षड्जमध्यमगान्धारा ऋषभश्च स्वरा हिताः ।
LXXXV.40; *BY*, XXIII.36.
गान्धारषडजमृषभः खलु मध्यगश्च यानेश्वराः शुभकरा नतु येऽवशेषाः ॥
YY, XIV.20.

This is the reading given by J.L. Shastri. It contains many mistakes which should be corrected in the light of the following extract quoted by Utpala on LXXXV.40—उक्तं च ।
गान्धारषड्जऋषभः खलु मध्यमश्च याने स्वराः शुभकरा न तु येऽवशेषाः ।
ग्रामौ शुभावपि हि मध्यमषड्जसंज्ञौ गान्धारगीतमपि भद्रमशन्ति देवा : ॥

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the sounding of the *tūryas* without their being struck and the absence of sound even when they are struck as a portent (*Anabhihatatūrya-nādaḥ śabdo vā tāḍiteṣu yadi na syāt*). Among musical instruments we find mention of the lute (*viṇā*[1], *vallakī*[2]), flute (*veṇu*),[3] *paṇava*[4], trumpet (*tūrya*[5]), tabor (*mṛdaṅga*[6], *muraja*[7]), conchshell (*śaṅkha*[8]), gong (*ghaṇṭā*[9]) and various kinds of drums such as *paṭaha*[10], *bheri*[11], and *dundubhi*.[12] The word *tūrya* sometimes appears to have been used in the sense of musical instruments in general.[13] For libidinous people the music of *vallakī* inspiring tender feelings was verily the food of love (LXXV.2).

DIṆḌIBHĀṆḌA (LXXXVI.12). The term *diṇḍibhāṇḍa* conveys the idea of a kind of musical concert wherein instrumentalists played on *paṭaha*, *mṛdaṅga* and *karaṭa* (*diṇḍibhāṇḍāni vāditra-viśeṣāḥ, paṭaha-mṛdaṅga-karaṭāḥ samavetā yatra vādyante tāni diṇḍibhāṇḍāni*, Utpala).[14]

PAINTING. Painting is referred to as *citra-karma* (LVII.14) and painters as *citra-kara* (V.74; IX.30), *citrajña* (X.10) and *ālekhyajña* (XVI.17). Cloth is mentioned as a painting material (*YY*, VI.10). Perfumed colouring substances were used for painting (XLVII.27). Drawing the figures of monsters, ghosts or house-owner with charcoal, red chalk, etc., in a house was regarded as inauspicious (XLV.77). In sculpture, the head was shown 32 *aṅgulas* in circumference and 14 *aṅgulas* in length, while in a picture only 12 *aṅgulas* (of circumference) were to be visible and the remaining 20 invisible (LVII.14).

1. XIX.18; LXVIII.22, 29; *YY*, II. 15, 19.
2. LXXV.2.
3. XIX.18; *YY*, II.19.
4. *YY*, II.19.
5. XLII.24; XLIII.7; XLVII.49; LIX.16; LXXXV.39, *YY*, II.19.
6. IV.19; XLII.59; XLIII.23; XLVII.49, 95.
7. LXVIII.22.
8. XLII.24, 59; XLIII.7, 16; XLVII.49; LIX.16, etc.
9. LXXXVI.26.
10. XLII.59.
11. XLII.59; LXVII.95.
12. XLII.34; *YY*, VIII.16.
13. Cf. XLV.60; LIX.10—*nānā-tūrya-ninādaḥ.*
14. Cf. *Manu*, X.49 for the use of the word *bhāṇḍa* in the sense of musical instruments.

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CHAPTER VIII

LITERATURE

Varāhamihira was an encyclopaedic writer and naturally he refers to a host of earlier or contemporary authors not only on astronomy and astrology but on various other subjects also. His equally learned scholiast Bhaṭṭotpala persistently styled him as 'the redactor of entire Jyotiḥśāstra' (*jyotiḥśāstra-saṅgraha-kṛt*), and the author himself makes his position clear in IX.7. He declares, 'Astronomy and astrology are the sciences based on *āgama*; should there be any difference of opinion (among ancient writers), it would not be proper on my part to put forward my view only; I shall, however, state the majority view[1].' The result is excellent, and his works form a valuable treasure-house of information about works and authors he consulted. His works assume still greater importance from the fact that they are the sole source of our knowledge about many works and their authors who, but for these references, might have irrecoverably been lost to us. We shall detail below, under different heads, the data bearing on the subject.

I. *Jyotiṣa*

Our author states that the science of Jyotiṣa is divisible into three departments (*skandhas*); the first branch called Tantra deals with the determination by mathematical calculation of the heavenly bodies ; the second known as Horā treats of horoscopy or the casting of the horoscope; and the last is natural astrology called Aṅgaviniścaya or Śākhā and that the treatment of the whole course of Jyotiṣa is named Saṁhitā.[1] The word

1. ज्यौतिषमागमशास्त्रं विप्रतिपत्तौ न योग्यमस्माकम् ।
स्वयमेव विकल्पयितुं किन्तु बहूनां मतं वक्ष्ये ॥ IX. 7.
2. ज्योतिःशास्त्रमनेकभेदविषयं स्कन्धत्रयाधिष्ठितं
तत्कात्स्न्योंपनयस्य नाम मुनिभिः संकीर्त्यते संहिता ।
स्कन्धेऽस्मिन गणितेन या ग्रहगतिस्तन्त्राभिधानस्त्वसौ
होरान्योऽङ्गविनिश्चयश्च कथितः स्कन्धस्तृतीयोऽपरः ॥ I.9

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saṁhitā, it would appear, is used here in a comprehensive sense to connote the treatment of the whole. Utpala quotes a distich of Garga in which the word *Saṁhitā* is employed in its wider sense. Thus 'only one who knows Jyotiṣa in its three sections, viz., Gaṇita, Jātaka and Śākhā, is considered to be well-versed in Saṁhitā.'[1] When Alberuni (I.157) states that 'Saṁhitā means that which is collected, books containing something of everything', he uses the word in its broader connotation. But there are a number of passages wherein it stands in the narrow meaning of the third branch of Jyotiṣa: it is synonymous with Aṅga.[2] Śākhā or Phalagrantha. Thus Varāhamihira tells us that a real astrologer is one who 'knows both text and meaning of the works on mathematical astronomy, natural astrology and horoscopy (*graha-gaṇita-horā-saṁhit-ārthavett-eti*)[3] and the commentator explains Saṁhita as Phalagrantha. It is said in another place that only a person fully accomplished in natural astrology can be an efficient diviner (*saṁhitā-pāragaś=ca daiva-cintako bhavati*).[4] He counsels a monarch desirous of victory to honour and secure the services of an astrologer who properly knows horoscopy, astronomy and natural astrology (Saṁhitā).[5] Varāhamihira's work on natural astrology is called Saṁhitā and he so names it in *PS*, XV.10. Thus he says, 'In the Śaṁhitā in the beginning of the chapter on Rāhu's course, I have fully explained to what causes, apart from Rāhu, solar and lunar eclipses are due.' This is evidently a reference to Chapter V of *BS*. Utpala invariably uses the word *saṁhitā* in its narrow connotation. Thus *saṁhitā* has a two-fold meaning : in its comprehensive sense it stands for the treatment of the entire science of Jyotiṣa which is otherwise called *jyotiṣa-saṅgraha*[6], while in the limited sense it denotes natural astrology. As

1. गणितं जातकं शाखां यो वेत्ति द्विजपुंगवः ।
   त्रिस्कन्धज्ञो विनिर्दिष्टः संहितापारगश्च सः ॥
2. *Aṅga* is used for the third branch in *BS*, I.8; *BJ*, II.9.
3. *BS*, Vol. I, p. 21.
4. *BS*, Vol. I, p. 73.
5. यस्तु सम्यग्विजानाति होरागणितसंहिताः ।
   अभ्यर्च्यः स नरेन्द्रेण स्वीकर्तव्यो जयैषिणा ॥ II.19.
6. स्कन्धैस्त्रिभिर्ज्योतिषसंग्रहोऽयं मया कृतो दैवविदां हिताय ।
   BJ, XXVIII.6.

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we have seen above, Varāhamihira defines the word as having a wider connotation but employs it more often in the narrower sense. The only satisfactory way to resolve this inner contradiction is to assume that the early astronomical works of Garga and others dealt with the whole of Jyotiṣa-śāstra as known in those days and were naturally called Saṁhitā; but with the growth of astronomical and astrological knowledge a three-fold classification set in and then the word *saṁhitā* came to be used as synonymous with *śākhā* or *phalagrantha* denoting only one of its branches. But at the same time it continued to be used in its broader etymological connotation. Hence the use of the word '*saṁhitā*' in a two-fold meaning.[1]

We may now proceed to enumerate the contents of works belonging to different branches of the science as laid down by our author. To begin with astronomy. Indian astronomical works are usually classified under three heads: 1. Siddhāntas, 2. Tantras and 3. Karaṇas. A clear-cut distinction between them cannot be drawn. According to the popular definition, however, such works as start their calculations from the beginning of the *kalpa* are known as Siddhāntas; the Tantras reckon their time from the beginning of Kali and the Karaṇas from any given Śaka date.[2] Alberuni (I.155) considers Karaṇas to be inferior to Siddhāntas. 'Such books', says he, 'as do not reach the standard of a Siddhānta are mostly called Tantra or Karaṇa.' That there can be no hard and fast rule limiting the contents of any class of works is proved by the fact that Varāhamihira names his only known astronomical treatise, i.e., *Pañcasiddhāntikā*, as a Karaṇa, which, as pointed out by Thibaut,[3] decidedly distinguishes itself from other ordinary

1. Kern finds it difficult to solve this problem and has to assume (*BS*, Introduction, p. 23) that it was through the Greeks that Indians were 'acquainted with two separate branches of the knowledge of stars' (the one really scientific, the other quasi-scientific). No final word has yet been said as to whether Indians really borrowed much from the Greeks and if so at what time. Moreover, in dealing with semasiological history of the word *saṁhitā* we need not go into the question of Greek influence. This problem is discussed subsequently. As is evident from the distich cited on p. 425 fn. 1, this three-fold classification was well-known as early as the time of Garga and may be still earlier.

2. *HIA*, p. 7; P. C. Sengupta, *Khaṇḍakhādyaka*, Engl. Tr., p.1.

3. *PS*, Introd., p. 8.

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works of this class by containing certain contents lying outside the domain of a Karaṇa, e.g., constitution of the universe (*Trailokya-saṁsthāna*, Ch. XIII) and secrets of astronomy (*Jyotiṣopaniṣad*, Ch. XV), and by not being based on a Siddhānta.

Although the traditional number of the allegedly revealed or semi-revealed Siddhāntas is stated to be eighteen,[1] only five of them were known to our author, viz., 1. *Pauliśa*, 2. *Romaka*, 3. *Vāsiṣṭha*, 4. *Saura* and 5. *Paitāmaha*.[2] Of these, the first two were commented upon by Lāṭadeva,[3] one of the direct pupils of Āryabhaṭa.[4] Our author declares that the Siddhānta composed by Pauliśa is accurate, that proclaimed by Romaka is close to it (in accuracy), and still more accurate is the *Sāvitra* (*Saura*) *Siddhānta*, while the remaining two, i.e., *Vāsiṣṭha* and *Paitāmaha*, are far from the truth.[5] He allots varying amount of space to individual Siddhāntas in accordance with his assessment of their relative value. These Siddhāntas represent different stages in the evolution of Hindu astronomical systems. The *Paitāmaha* as known to Varāhamihira is very close to the *Vedāṅga Jyotiṣa*, the earliest astronomical work that India has bequeathed to us, and represents amorphous state of Indian astronomy. The *Vāsiṣṭha Siddhānta* is evidently comparatively

1. सूर्यः पितामहो व्यासो वसिष्ठोऽत्रिः पराशरः ।
कश्यपो नारदो गर्गो मरीचिर्मनिरंगिराः ।।
लोमशः पौलिशश्चैव च्यवनो यवनो भृगुः ।
शौनकोऽष्टादशाश्चैते ज्योतिःशास्त्रप्रवर्तकाः ।।

(quoted in Sudhākara Dvivedi's *Gaṇaka-taraṅgiṇī*, p. 1).

2. तत्र ग्रहगणिते पौलिशरोमकवासिष्ठसौरपैतामहेषु पंचस्वेतेषु सिद्धान्तेषु.... *BS*, II, p. 22.

पौलिश-रोमक-वासिष्ठ-सौर-पैतामहाश्च पंच सिद्धान्ताः । *PS*, I. 3a.

3. पंचभ्यो द्वावाद्यौ व्याख्यातौ लाटदेवेन । *PS*, I.3b.

4. Bhāskara I in his comm. on *Āryabhaṭīya*, Kālakriyā, verse 10, observes :— *Etad=ev-Āryabhaṭasya śāstra-vyākhyāna-samaye Pāṇḍuraṅgasvāmi-Lāṭadeva-Niśśaṅku-prabhṛtibhyaḥ provāca*, cf. P. C. Sengupta, *Khaṇḍakhādyaka*, Engl. Tr., Introd., p. xix.

5. पौलिशकृतः स्फुटोऽसौ तस्यासन्नस्तु रोमकप्रोक्तः ।
स्पष्टतरः सावित्रः परिशेषौ दूरविभ्रष्टौ ।। *PS*, I.4.

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more advanced and forms a transitional phase between the earlier quasi-scientific astronomical works and the later perfected astronomical systems. The *Pauliśa* and *Romaka* are most probably responsible for introducing Greek astronomy in India. The *Saura* is the most perfect record of the early Indian scientific astronomy.

The Siddhāntas are said to incorporate the treatment of the divisions of the ecliptic and of time in terms of ages (*yuga*), years, half-years (*ayana*), seasons, months, fortnights, days (*ahorātra*), watches (*yāma*), hours (*muhūrta*), *nāḍī*, *prāṇa*, *truṭi*, subdivisions of *truṭi*, etc., the four kinds of time-measure—solar, civil, stellar and lunar, intercalary months and subtractive days; the beginning and end of the Jovian cycle of sixty years, of the lustrums, years, days, hours (*horā*), and their respective lords; similarity or difference, adaptation to use or not of the different reckonings of time, viz., solar, civil, stellar and lunar; the use of shadow and clepsydra, observation and calculation to find out the moment when the sun reaches the solstitial point and the time of the sun's entrance in the prime vertical; the cause of the swift and slow motion, the northern and southern course, and the moving in an epicycle of the sun and other planets; the method of predicting the moment of the commencement and cessation, the direction, magnitude, duration, amount of obscuration, colour and place of visibility of solar and lunar eclipses as also planetary conjunctions and hostile encounters; ascertainment of the distance in terms of *yojanas* of each planet from the earth, the dimension of their orbits, and the distance of the places on earth also expressed in *yojanas*; geometrical operations and calculation of time in order to determine the form of the earth, the circuit of the circle of asterisms, etc; the depression of the pole, the diameter of the day-circle, the ascensional differences in time, the rising of zodiacal signs, the *nāḍīs* corresponding to the shadow of the gnomon, etc.[1]

Next comes horoscopy. It includes the following topics: the strength or weakness of zodiacal signs (*rāśi*), half-signs (*horā*), third parts (*dreṣkāṇa*), ninth parts (*navāṁśaka*), twelfth-parts and degrees; determination of various kinds of power of

1. *BS*, II, pp. 22-56.

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the seven planets due to the direction, the place occupied, the moment and the contention; the temperaments (*prakṛti*), bodily elements (*dhātu*), substances (*dravya*), caste (*jāti*), and sphere of activity, etc. belonging to the department of each planet; conception, time of birth, prognostication of prodigious accessories, instant death of the child, span of life, destiny and intervening changes of it, the most favourable combinations of planetary positions as may exist in theory (*aṣṭakavarga*), the constellations in which kings are born (*rājayoga*), the lunar constellations (*candrayoga*), the constellations formed by only two planets and so on, the celestial constellations, etc. and the effects of all these ; descent and character, the planetary aspects (*avalokana*), manner of death (*niryāṇa-gati*), state in a former birth and after death (*anūka*), good and bad symptoms at the time of queries, the calculations of lucky periods for nuptial and other ceremonies.[1]

At present, Varāhamihira's are the earliest available works on Jātaka and Vivāha, both coming within the jurisdiction of Horā. But abounding references in his works to older authors whom he consulted indicate the existence in his time of a large number of works dealing with these topics.

According to Utpala, the determination by means of *lagna* and planetary positions of auspicious or inauspicious fruits resulting from the consecration, travelling, marriage and such like matters is the function of Horā;[2] but this definition does not appear to have been in common acceptation at the time of our author, for while incorporating Vivāha in the constants of Horāśāstra he enumerates the contents of the Yātrā separately. It may be suggested that the Yātrā fell within the dominion of the Saṁhitā. In support of our view, we may point out that certain topics, e.g., foretokens of fire, prognostics from horses and elephants, bath for victory and *śākuna*, are common to both the Yātrā and Saṁhitā and consecration (*pratiṣṭhā*) is included in the latter.

The contents of the Yātrā are as follows : auspicious or inauspicious dates (*tithi*), week-days, *karaṇas*, asterisms,

1. *BS*, II, p.68.
2. *Pratiṣṭhā-yātrā-vivāh-ādīnāṁ lagna-graha-vaśena ca śubh-āśubha-phalaṁ jagati yayā niściyate sā horā*, Utpala on 1.9.

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muhūrtas (48-minute periods), horoscopes, constellations, throbbing of the limbs, dreams, bath for victory, sacrifice to the planets, offerings to the goblins (*gaṇayāga*), foretokens of fire (*agnilakṣaṇa*), gestures of elephants and horses, the talk and acts of the troops, the pursuance of any one of the six-fold statecraft (*ṣāḍguṇya*) in conformity with the forebodings of the planets, good and bad auguries, the camping ground for army, the colour of the fire, the use, according to circumstances, of ministers, spies, messengers, and forest people (*āṭavika*) and the expedients for capturing enemy's strongholds.[1]

Varāhamihira does not claim for himself the credit of prescribing the above contents of the Yātrā; on the contrary, he frankly confesses that they were laid down by the *ācāryas*, i. e., learned authors of Yātrā works (*ity=uktam=ācāryaiḥ*), and in LXXXV.3 he refers to Garga and other Yātrā-writers and to works in Sanskrit and Prakrit[2]. The *Bṛhadyātrā* abounds in references to earlier authorities.[3] The combined evidence of all these references proves beyond doubt the existence of a large number of works dealing with the prognostics for travels.

Natural astrology known as Saṁhitā, Śākhā, Aṅga or Phalagrantha treats of the following matters: the course of the sun and other planets and, during it, their natural and unnatural symptoms, magnitude, colour, brilliance of the rays, appearance, risings and settings, their routes and deviations therefrom, retrograde and post-retrograde motions, the conjunctions of planets with asterisms, etc. as also their consequences; the division of asterisms into nine triads and assigning different countries to them ; the course of Canopus and of the Great Bear, assigning things, countries, and peoples to different planets and asterisms, the conjunction of the five planets in the figure of a triangle (*graha-śṛṅgāṭaka*), planetary conflicts, the conjunction of planets with the moon, the effects produced by planets on the years presided over by them, the symptoms of pregnancy of clouds, the moon's conjunction with Rohiṇī, Svāti, Pūrvāṣāḍhā and Uttarāṣāḍhā, the foretokens of imme-

1. *BS*, II, p. 71.
2. सप्तर्षीणां मतं यच्च संस्कृतं प्राकृतं च यत् ।
यानि चोक्तानि गर्गाद्यैर्यात्राकारैश्च भूरिभिः ॥ LXXXV.3.
3. Cf. *YY*, I.2. सामुद्रयात्रिकनिमित्तशतैः पृथूक्तैः ।

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diate rain, prognostics from the growth of flowers and creepers, the mock sun, the halo, the line of clouds piercing the sun's disc at sun-rise or sun-set, the wind, the meteors, burning of quarters (*digdāha*), the earthquake, the glowing red of twilight (*sandhyārāga*), city-like appearance of clouds (*gandharva-nagara*), haze, hurricane (*nirghāta*), fluctuation of prices (*arghakāṇḍa*) in accordance with the sun's movement in various signs of the zodiac, prognostics for the growth of crops (*sasyajanma*), Indra's banner, the rainbow, residential architecture (*vāstuvidyā*), palmistry (*aṅgavidyā*), auguries from crows (*vāyasa-vidyā*), the augural circle (*antaracakra*), the circle of wild beasts (*mṛgacakra*), the circle of dogs (*śvacakra*), the circle of winds (*vātacakra*), temple-architecture, iconometry and iconography (*pratimā-lakṣaṇa*), installation of images (*pratiṣṭhāpana*), horticulture (*vṛkṣāyurveda*), exploration of sub-soil water-veins (*udagārgala*), the lustration (*nīrājana*), the signs of and omens from wagtails, allaying the influence of portents (*utpāta-śānti*), miscellaneous matters (*mayūra-citraka*), the signs of swords, of tiaras, of cocks, of tortoises, of cows, of goats, of horses, of elephants, and of men and women; reflections on the harem (*antaḥpura-cintā*, including appreciation of women's virtues—LXXIII, winning the affection—LXXIV, erotic remedies—LXXV, cosmetics and perfumery—LXXVI, and the union of man and woman—LXXVII), the prognostics of boils, slits of shoes and garments, prognostics of chowries, of umbrella-sticks, of bed-steads and seats, examination of jewels, omens from lamps, tooth-sticks, etc. occuring in the life of a common man as also of kings.[1]

The contents of the Saṁhitā were divided into two classes: *aṅga* and *upāṅga* (Cf. II.6, where the word *aṅgopāṅga* occurs). According to Garga, as cited by the commentator (on II.6), that which is based on planets, asterisms and twelve signs of the zodiac is called *aṅga* and everything else *upāṅga*.[2] Thus the sections on fauna, signs of men and women, slits of clothes and

1. *BS*, II, pp. 73-4.
2. तथा च भगवान् गर्गः

अधिकृत्य ग्रहर्क्षादि जगतो येन निश्चयः ।
तदङ्गमुत्तमं विन्यादुपाङ्गं शेषमुच्यते-इति ॥

Cf. Utpala—. . . तथोपाङ्गानि तत्रैव पठितानि पुरुषलक्षणस्त्रीलक्षणवस्त्रो-

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shoes, reflections on womankind, examination of jewels, signs of lamps, tooth-sticks, tiaras, swords, chowries, umbrellas, couches and seats, etc. which are of greater value for cultural history come under the category of minor subjects, i. e., *upāṅgas*.

It seems likely that our author was responsible for extending the scope of the Saṁhitā so as to cover a somewhat wider field. To illustrate it, the whole section concerning the harem (*antaḥpuracintā*) covering Chs. LXXIII-LXXVIII is for the first time brought to bear on the contents of the Saṁhitā by our author. It is noteworthy that on none of the verses of these chapters except a few verses dealing with the signs of loving and disaffected women (LXXVII.4-—11 where Kāśyapa is cited) does Utpala quote from earlier Saṁhitās. Āyurvedic works must have been the source of this new material. The *Kāmasūtra* of Vātsyāyana, the Purāṇas and the Smṛti literature also cannot be ignored in this connection. Ch. LXXVIII on couches and seats is evidently based on earlier Vāstuśāstra works of Viśvakarman and others and not on the Saṁhitās of Garga, Kāśyapa, etc. Varāhamihira was the first to incorporate the sections on the examination of jewels (Chs. LXXIX-LXXXII), and the signs of lamps and tooth-sticks (Chs. LXXXIII, LXXXIV) in the Saṁhitā. On none of these topics does the commentator quote from any of the older Saṁhitās. Thus the major portion of what is called *upāṅga* of a Saṁhitā is an innovation of Varāhamihira and he may well lay a claim to originality in this respect.

Some verses of the *Bṛhatsaṁhitā* and Bhaṭṭotpala's commentary thereon enable us to form a rough idea of the nature and contents of the older Saṁhitās. 'Simply because a particular ancient work is', says our author, 'composed by a sage, it should be good, while that written by a human author of our time could not be so; this being a non-Vedic science why should there be any distinction between the two only because of difference in words, while the sense conveyed in both the cases is the same ?[1] In the next verse he mentions an ins-

पानच्छेदरत्नलक्षणदीपदन्तकाष्ठलक्षणादीनि । एतदुक्तं भवति । ग्रहनक्षत्रराशीनाश्रित्य यदुक्तं तान्यङ्गानि परिशिष्टान्युपाङ्गानि-इति ।

1. मुनिविरचितमिदमिति यच्चिरन्तनं साधु न मनुजग्रथितम् ।
तुल्येऽर्थेऽक्षरभेदादमन्त्रके का विशेषोक्तिः ॥ I.3.

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tance of one and the same statement being made in different words in a work attributed to Pitāmaha on the one hand and in that of human authorship on the other and asks the reader to see if there is any material difference between the two (I.4). That Varāhamihira had to defend himself indicates the presence of astrological works attributed to divine or legendary personages and an unwillingness on the part of the people to grant recognition to new works of human authorship.

In ancient India, it was customary for human authors in all the branches of study not to lay any claim to originality and to treat their own works as merely abridged versions or restatements of old writings and astrology was no exception. Varāhamihira, accordingly, tells us that the voluminous works emanated from Brahmā and others were undergoing a gradual process of being epitomised.[1] The work ascribed to Prathama Muni or Pitāmaha is styled *grantha-vistara* or an extensive treatise in I.2, 5 and its redundant character is illustrated in I.4.

We may have some idea of the legendary character of the matters contained in earlier works of this class from I.11. We are promised that Varāhamihira would pass over queries and their answers, stories and the origin of planets, etc., which have no place in a science.[2] While illustrating these points, Utpala quotes extensively from Garga and Parāśara the legends and myths purporting to explain the origin of planets,etc. In Ch. V on the course of Rāhu, we are informed of the beliefs current about solar and lunar eclipses and Utpala quotes the authors responsible for the same. The unscientific and legendary character of older writings is also obvious from the fact that in a number of places where Varāhamihira's statements are at variance with the canons of mathematical astronomy, Utpala observes that they are based on earlier works (*pūrvaśāstras*). To give only a few instances, V.25[3]

1. आब्रह्मादिविनिःसृतमालोक्य ग्रन्थविस्तरं क्रमशः ।
क्रियमाणकमेवैतत्समासतोऽतो ममोत्साहः ॥ I.5.

2. प्रश्नप्रतिप्रश्नकथाप्रसंगान् स्वल्पोपयोगान् ग्रहसम्भवांश्च ।
सन्त्यज्य फल्गूनि च सारभूतं भूतार्थमर्थैः सकलैः प्रवक्ष्ये ॥ I.11.

3. हीनातिरिक्तकाले फलमुक्तं पूर्वशास्त्रदृष्टत्वात् ।
स्फुटगणितविदः कालः कथंचिदपि नान्यथा भवति ॥ V.25.

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states that the author has in the preceding stanza (V.24) described the fruits resulting from the occurrence of the solar and lunar eclipses before or after the calculated moment only because they were to be found in the *pūrvaśāstras* and that the time fixed by an expert astronomer can by no means be wrong. Utpala quotes Garga and Kāśyapa as declaring the effects of such eclipses. In V. 84-85 are mentioned the results accruing from an eclipse ending on the southern or northern side of the moon's orb, and Utpala states that this is opposed to the rules of mathematical astronomy and that Varāhamihira is here merely reproducing the views of earlier writers[1] and then quotes Kāśyapa. Similar remarks are made by the commentator on V.89-90 which describe the results of the cessations of eclipses called Madhyavidaraṇa and Antyavidaraṇa.[2] VI.I states that if Mars should begin its retrograde motion in the ninth, eighth or seventh constellation reckoned from the asterism in which he is posited at the time of his emergence after the last conjunction with the sun, it is named Uṣṇavaktra, and according to Utpala even this statement is based on the *pūrvaśāstras*[3] and he actually quotes Vṛddha-Garga and Kāśyapa as holding such a view. It is said in VII.2 that when Mercury transits through Śravaṇa, Dhaniṣṭhā, Rohiṇī, Mṛgaśiras and Uttarāṣāḍhā cutting through any one of them, it leads to the absence of rain and outbreak of diseases,[4] and the commentator would have us believe that this statement is made by Varāhamihira following earlier works[5] and he cites a verse from Kāśyapa to that effect. VII.8-13 name and define seven courses of Mercury, namely, Prākṛta, Vimiśra, Saṅkṣipta, Tīkṣṇa, Yogānta, Ghora, and Pāpa, and give measures in

1. एतदौत्पातिकम् । यतो गणितगोलवासनया दक्षिणोत्तरयोर्दिशोर्ग्रसिमोक्षौ न भवतः । कदाचिदपि आचार्येण पूर्वशास्त्रानुसारेणोक्तम् ।

2. एतदप्यौत्पातिकम् । यतो गणितगोलविरुद्धम् ।

3. अत्र यद्यप्यसम्भवस्तथापि पूर्वशास्त्रानुसारेणाचार्येणोक्तम् ।

4. विचरन् श्रवणधनिष्ठाप्राजापत्येन्दुवैश्वदेवानि ।
मृद्नन् हिमकरतनयः करोत्यवृष्टिं सरोगभयाम् ॥ VII.2.

5. मर्दनमत्र श्रवणमध्यात्केषांचित्सम्भवति केषांचिन्न सम्भवति । आचार्येणोक्तं पूर्वशास्त्रानुसारेणेति ।

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days for the rising and setting of Mercury in its seven courses. Utpala in this case makes the important statement that these do not agree with mathematical calculations, that Varāhamihira does not concur in this view, and that he merely restates here the views of earlier authorities such as Parāśara, Vṛddha-Garga and Kāśyapa[1] from whom he actually quotes passages. On IX.4 dealing with the paths (*vīthīs*) of the course of Venus, Utpala adduces as authority verses from Garga and a prose-passage from Parāśara and explicitly states that in this case Varāhamihira differed from them. The statement that the Canopus (Agastya) rises and sets when the sun is posited in the asterisms Hasta and Rohiṇī respectively[2] is also regarded by the scholiast as inaccurte and based on earlier writings and not as Varāhamihira's own opinion.[3] XXXII.1-7 acquaint us with the prevalent beliefs as to the causes of an earthquake,[4] and Utpala represents Kāśyapa, Garga, Vasiṣṭha, Vṛddha-Garga, Parāśara and others as holding such views.

This brief survey leaves no room for doubt that our author improved upon the older Saṁhitās by bringing in much new material and leaving out of account certain legendary and unscientific topics.

A passing reference may now be made to the much discussed question of foreign, particularly Greek, influence on Indian astronomy and astrology. Three of the Siddhāntas mentioned above betray very close acquaintance with Greek astronomy. The *Romaka* and *Pauliśa* bear non-Indian names. About astrology, Varāhamihira says, 'Yavanas are Mlecchas; this science (Jyotiṣa) is well-established among them; (therefore) even they are worshipped like sages; how much more then would a twice-born proficient in astrology be ?'[5] More-

1. यद्यपि गणितवासनयैतन्नोपपद्यते तथापि पराशरमङ्गीकृत्याचार्येणोक्तम्. . . . . न केवलं पराशरेणोक्तं यावद् गर्गादिभिरपि. . . . . तथा च कश्यपः. . . . . आचार्यस्यैतन्नाभिमतम् । यतः समाससंहितायामनेनैवोक्तम्. . .

2. दृश्यते स किल हस्तगतेऽर्के रोहिणीमुपगतेऽस्तमुपैति । XII.21.

3. यद्यप्यत्र गणितसाम्यं न भवति तथाप्याचार्येण पूर्वशास्त्रदृष्टत्वात् कृतम्. . . . . एवं पूर्वशास्त्रदृष्टत्वादाचार्येणात्रोक्तम् ।

4. See *supra* Ch. VI.

5. म्लेच्छा हि यवनास्तेषु सम्यक् शास्त्रमिदं स्थितम् ।
ऋषिवत्तेऽपि पूज्यन्ते किं पुनर्दैवविद् द्विजः ॥ II.14.

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over, Varāhamihira uses as many as thirty-four Sanskritised Greek words[1] and among his authorities on Jātaka is one Yavana (*BJ*, VII.1 ; XI.1 ; XXI.3 ; XXVII.19-21). In some cases the name Yavana occurs in plural, indicating that the refrences are not to a Yavana author but to Greek authors in general or a school of the Yavanas. The name *Romaka* and the alleged identity of Puliśa, the supposed author of the *Pauliśa*, Maya (the modern *Sūryasiddhānta* is believed to have been revealed to him) and Maṇittha (*BJ*, VII.1 ; *BY*, X.21 ; XI.9) with Polus Alexandrinus,[2] Ptolemy, the author of the astrological treatise *Almagest*,[3] and Manetho, the author of the *Apotelesmata*,[4] respectively are also indicative of Indians' deep knowledge of Greek astronomy and astrology. Regarding the extent of the Greek impact, however, widely divergent views are held by competent authorities.[5] In our humble opinion, the *Romaka* and *Pauliśa* are direct Sanskritised importations from the West, while the evidences set forth above merely indicate Indians' acquaintance with Greek astronomy and astrology and at best an exchange between the two.

Next, we shall mention, in an alphabetical order, the names of authors and works referred to in the *Bṛhatsaṁhitā* and append what little information we have been able to gather from various sources.

1. *Atri*. Ch. XLV on *utpātas* is said to be a summary of the portentous phenomena which Garga expounded follow-

1. The Sanskritised loan-words from Greek astrology are-*kriya*, *tāuri*, *jituna*, *leya*, *pāthena*, *dyūka* or *jūka*, *kauryya*, *taukṣika*, *ākokera*, *hṛdroga*, *ittham*, *heli*, *himna*, *ara*, *jyo*, *koṇa*, *asphujit*, *horā*, *kendra*, *dreṣkāṇa* or *drekkāṇa*, *liptā*, *anophā*, *surapha*, *durudhara*, *kemadruma*, *veśi*, *āpoklima*, *panaphara*, *hibuka*, *jāmitra*, *mesūraṇa*, *dyūnam*, *dyutam*, *rihpha*, *kulīra* and *trikoṇa*, cf. Weber, *History of Indian Literature*, pp. 254-255. Kern, Introd. to *BS*, pp. 28-29, fn. 1) excludes *kendra* and *kulira* from the list and adds one new word, viz., *harija*.

2. Weber, *History of Indian Literature*, p. 253, fn. 277; Keith, *History of Sanskrit Literature*, p. 518.

3. Weber, *op. cit.*, pp. 252-253, Whitney, *Sūryasiddhānta* Tr., note on I.

4. Keith, *op. cit.*, p. 531.

5. Kern, Introd. to *BS*, pp. 23, 28-29, 48-50, 52; Weber, *History of Indian Literature*, pp. 251 ff.; Whitney and Burgess, Appendix to *Sūryasiddhānta* Tr., pp. 380-387, 387-392; Keith, *History of Sanskrit Literature*, pp. 525-28, 530-31, Thibaut, Introd. to *PS*, pp. lxvi ff.; *HIA*, pp. 492-524.

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ing Atri.[1] This admits of two inferences : that Atri wrote a work on *utpātas* which was followed as an authority by Garga, or that Garga received instructions from Atri. He is also mentioned as an authority on Yātrā (*BY*, XXIX.3).

2. *Asita.* XI.1 names him as a writer on *Ketucāra.*[2] According to the commentator (on XXI.2), Asita also wrote on the pregnancy of clouds (*garbha-lakṣaṇa*). In *BY*, XIX.1[3], he is referred to along with Devala and Kāśyapa in connection with the signs of fire.

3. *Bādarāyaṇa.* XXXIX.1 tells us that the good and bad *yogas* for the growth of summer and autumnal crops at the time of the sun's entry into Scorpion (Vṛścika) and Taurus (Vṛṣa) are narrated on the authority of Bādarāyana[4] and Utpala cites from him one verse each on XXXIX.2, 4, 8, 10 and 12. Utpala (on XXI.2) again informs us that Bādarāyaṇa was an authority on *garbha-lakṣaṇa.* Bādarāyaṇa is quoted several times by Utpala in his commentary on *YY*, IV and *BJ*, VI.2 and XI.5.[5]

4. *Baladeva.* LIII.125 states that Varāhamihira consulted the views of Baladeva and others regarding rainfall.[6] This verse is not found in S. Dvivedi's edition.

5. *Bhāguri.* From XLVII.2, it appears that Bhāguri learned Puṣya-śānti from Vṛddha-Garga.[7] In LXXXV.1, he is referred to as an author on Śākuna and Ṛsabha is said to have based his work on him along with others. He is also named in *VP*, verse 23.

6. *Bhāradvāja.* LXXXV.2 mentions him as an ancient author on Śākuna and *Mahārājādhirāja* Dravyavardhana,

1. यानत्रेरुत्पातान् गर्गः प्रोवाच तानहं वक्ष्ये । XLV.1.
2. गार्गीयं शिखिचारं पाराशरमसितदेवलकृतं च । XI.1.
3. श्लोकांश्चासित-देवल-कश्यपमुनिचोदितान् वक्ष्ये । *BY*, XIX.1.
4. वृश्चिकवृषप्रवेशे भानोर्ये बादरायणेनोक्ताः ।
ग्रीष्मशरत्सस्यानां सदसद्योगाः कृतास्त इमे ॥ XXXIX.1.
5. *JBBRAS*, 1948-49, p. 5.
6. मेघोद्भवं प्रथममेव मया प्रदिष्टं ज्येष्ठामतीत्य बलदेवमतादि दृष्ट्वा ।
LIII.125.
7. या व्याख्याता शान्तिः स्वयम्भुवा सुरगुरोर्महेन्द्रार्थे ।
तां प्राप्य वृद्धगर्गः प्राह यथा भागुरेः शृणुत ॥ XLVII.2.

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king of Avanti, is said to have based his treatise exclusively on that of Bhāradvāja. The commentator (on LII.75-76) quotes an Anuṣṭubh verse from him regarding the position of the door in a house.

7. *Bhṛgu.* According to LXXXV.43, Bhṛgu declared as auspicious the movement of the bird *cāṣa* and mongoose from right to left of a traveller in the afternoon.[1] Also mentioned in *BY*, IV. 30; XXIII.39.

8. *Bṛhadratha.* LX.1 states that the chapter on *golakṣaṇa* (signs of cows) is summarised from what Parāśara taught to Bṛhadratha (*Parāśaraḥ prāha Bṛhadrathāya go-lakṣaṇaṁ yat kriyate tato=yam|Mayā samāsaḥ śubha-lakṣaṇās=tāḥ sarvās=tath-āpy=āgamato=bhidhāsye*).

9. *Bṛhaspati.* In XXIV.2, Bṛhaspati is said to have taught the moon's conjunction with Rohiṇī and its bearing on rainfall and crops to Nārada. According to LXXXV.1, Ṛṣabha based his treatise dealing with Śākunas on Vāgīśa (Bṛhaspati) along with others. In all, Utpala quotes five Anuṣṭubh verses from him: one Anuṣṭubh quoted on XXXV.3 deals with the signs of rainbow, another on LII.88 describes the places where a residential building should not be located, and three verses quoted on LII.2-3 treat of Vāstu-puruṣa.

10. *Devala.* It is stated in VII.15 that according to Devala the effects of Ṛjvī, Ativakrā, Vakrā and Vikalā motions of Mercury last for 30, 24, 12 and 6 days respectively,[2] and Utpala (on VII.16) actually quotes five Anuṣṭubh stanzas from him. XI.1 names him as an author on *śikhicāra*. Along with others, his work on Śākuna is said to have formed basis of Ṛṣabha's work on the same subject (LXXXV.1). Utpala (on V.3) ascribes to Devala the view that Rāhu is formless and of the nature of pure darkness, and quotes an Anuṣṭubh of his to that effect. Devala is quoted by Utpala in connection with the courses of Venus (one verse on IX.1) and Saturn (X.19, one verse), *grahavarṣa-phala* (XIX.22, one verse), *sandhyā-lakṣaṇa* (XXX.32, 1½ verses) and rainfall (XXI.2, XX III.4, one verse). Thus the contents of Devala's work were similar

1. चाषः सनकुलो वामो भृगुराहापराह्णतः। LXXXV.43b.
2. ऋज्व्यतिवक्रा वक्रा विकला च मतेन देवलस्यैताः॥
पंचचतुर्द्व्येकाहा ऋज्व्यादीनां षडभ्यस्ताः॥ VII.15.

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to those of *BS*, and probably Devala was a Saṁhitā-writer. He is also mentioned in *BY*, XII.15 (on marching in different planetary aspects), XIX.1 (*agni-lakṣaṇa*), *YY*, IX.12 and *VP*, verse 22 (on the consequence of *nakṣatra* in regard to the nuptial). The reference to Devala in a verse of Ṛṣiputra quoted by Utpala on *YY*, I.15-16 shows that Devala was an older authority than Ṛṣiputra.

11. *Dravyavardhana.* It is stated in LXXXV.2 that on Śākuna Varāhamihira consulted, among others, the work which *Mahārājādhirājaka*, Dravyavardhana, king of Avanti, had composed after consulting Bhāradvāja's work.[1] Now, Avanti stands for both western Malwa and its ancient metropolis Ujjayinī. However, the commentator takes it in the latter sense.[2] As Varāhamihira flourished in the first half of the sixth century A.D., king Dravyavardhana, whose work he consulted, must have ruled some time in or before the beginning of that century. The identity of this king and his relation with Ujjayinī have formed a subject of a long-drawn controversy between Drs. V.V. Mirashi and D.C. Sircar. According to Dr. Mirashi, Dravyavardhana was an Aulikara king who ruled from about V. 552 to 572 (A.D. 495-515) and was thus a predecessor of Yaśodharman-Viṣṇuvardhana and probably his father. He takes the above statement of Varāhamihira to indicate that the Aulikara kings from Ādityavardhana onward ruled not from Daśapura (Mandasor), as usually believed, but from Ujjayinī.[3] This view is disputed by Dr. Sircar who upholds the older theory taking Daśapura to be the capital of the Aulikaras.[4] It must be remembered that Dravyavardhana is not mentioned in any epigraphic record, nor does Varāhamihira associate him with the Aulikaras. If, however, Dravyavardhana is assigned to the Aulikara family on some other grounds

1. भारद्वाजमतं दृष्ट्वा यच्च श्रीद्रव्यवर्धनः ।
आवन्तिकः प्राह नृपो महाराजाधिराजकः ॥ LXXXV.2.

2. श्रीद्रव्यवर्धनाख्यो महाराजाधिराजवंशप्रसूत आवन्तिक उज्जयिन्या नृपो राजा.....

3. *IHQ*, XXXIII, pp. 314-320; *Studies in Indology*, Vol. I, pp. 206-212; Vol. II, pp. 180-184.

4. *IHQ* XXXV, pp. 73-75. Dr. Buddha Prakash (*Aspects of Indian History and Civilization*, pp. 89-100) thinks that *Mahārājādhirāja*. Dravyavardhana was a successor of Yaśodharman-Viṣṇuvardhana, the latter being the first ruler in the Aulikara family to attain the rank of *Mahārājādhirāja-Parameśvara*.

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as is done by Dr. Mirashi, the gloss of Utpala would have us believe that Dravyavardhna, as also the family to which he belonged (i. e. Aulikara), had Ujjayinī for the seat of his government. That Varāhamihira also uses Avanti in the sense of Ujjayinī would be evident from a comparison of XII. 14[1] and its parallel in the *Samāsa-saṁhitā* quoted by the commentator.[2] In the latter 'Avanti' stands for 'Ujjayinī' used in the former. There is thus no room to doubt Dravyavardhana's association with Ujjain as his metropolis.

12. *Garga.* None of the authorities named in *BS* can claim a larger number of references than Garga. XI.1 refers to his *Śikhicāra*, and Utpala actually quotes a number of verses from him according to one of which (on XI.15) *ketus* number 1000. XXI.2 states that the account of the pregnancy of clouds is based, among others, on Garga. XXI.5 avers that the author will enumerate the days of the formation of rain-embryos following Garga and others. In contradistinction to Siddhasena he held that the formation of rain-foetuses commences on the first day of the bright fortnight of Mārgaśīrṣa (XXI.6). In XXIII.4, he is represented as holding the view that there will be good rain duirng the whole season if there be rain over an area of not less than 12 *yojanas* in the beginning. In XXIV. 2, he is said to have instructed his pupils about the moon's conjunction with Rohiṇī. According to XLV.1, Garga studied *utpātas* from Atri or was inspired by the latter's work. XLV. 52 informs us that the following two verses (XLV.53-4 describing a *śānti* to be performed when twins are born to a mare, she-camel, she-buffalo, cow or she-elephant) are composed by Garga, XLV.56-8, 79-80 refer to two other *śāntis* prescribed by Garga. XLVII.38-42 enumerate materials necessary for *Puṣya-snāna* following Garga's view. LV.31 refers to his *Prāsada-lakṣaṇa* (a work on temple architecture). XLIX. 15 tells us that the method of divining dents in a sword des-

1. संख्याविधानात् प्रतिदेशमस्य विज्ञाय सन्दर्शनमादिशेज्ज्ञः ।
तच्चोज्जायिन्यामगतस्य कन्यां भागैः स्वराख्यैः स्फुटभास्करस्य ॥
XII.14.

2. तथा च समाससंहितायाम् ।
सप्तभिरंशैः कन्यामप्राप्ते रोमके तु दिवसकरे ।
दृश्योऽगस्त्योऽवन्त्यां तत्समपूर्वापरेऽप्येवम् ॥

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cribed in XLIX.11 ff. is based on Garga's view, and Utpala actually quotes three Anuṣṭubh verses from Garga to that effect. According to LXIV.8, LXIV.9 describing four kinds of goats is of Garga. In LXXXV.3, Garga is represented as a writer on Yātrā and Śākuna. According to Utpala, II.1 and 6 are borrowed by our author from Garga. He is also named in *BY*, IV.6 (view about auspicious direction and *nakṣatras* for a royal march); VI.5, and in *VP*, 22-23. In the last verse, the name Garga occurs in plural number and may refer to a school of Garga's followers or may simply be indicative of honour. From what has been said above, it would appear that most of the topics found in *BS* were dealt with in Garga's work which must come under the category of Saṁhitā, and it is interesting to note that most of the verses of Garga cited by the commentator (he quotes over 430 verses) can be traced to the extant *Gārgī Saṁhitā*[1]. Garga appears to be a somewhat mythical personage, and according to Kern he is a meteoric phenomenon and his name originally denoted 'thunder, lightning', as a derivative from '*garja*'.[2] In a few verses of Garga cited by Utpala on I.5, it is stated that Garga studied *Jyotisa Vedaṅga* from the Self-Born who created it for use in sacrifices and then from him (Garga) other sages received it and wrote works thereon.

Before proceeding to name other authorities, it would be desirable to record available information about Vṛddha-Garga also. XIII.2 declares that Varāhamihira would describe the motion of the constellation of the Great Bear (*saptarṣi*) relying upon Vṛddha-Garga's view, and the next verse is evidently based on Vṛddha-Garga whose verse is cited by the commentator. XLVII.2 states that Vṛddha-Garga imparted to Bhāguri the *śānti* which Svayambhū had expounded to the preceptor of gods for the sake of Indra. At a number of places, our author uses the words *muni* (Cf. XLVII.23, 51) and *ṛṣi* (Cf. LXXXV.6) and Utpala takes them to stand for Vṛddha-Garga. Utpala quotes over ninty-five verses from him. While illustrating *praśna* and *prati-praśna* in I.11, Utpala cites twenty-

1. Kern, *BS*, Introd., pp. 34-35. Alberuni (I.157) also refers to Garga as a Saṁhita-writer.

2. *BS*, Introd., p. 30; *JRAS*, N.S. IV (1870), p. 431 fn.

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three verses in the Anuṣṭubh metre as Garga's (not twenty-five as stated by P. V. Kane[1]), but in the verses themselves Vṛddha-Garga (not Garga) is introduced as propounder. In this case, Utpala seems to identify the two. At the same time, it is equally interesting to see Utpala quoting both Garga and Vṛddha-Garga separately on one and the same verse of *BS*. Thus on V. 17, Utpala cites two stanzas in Anuṣṭubh from Vṛddha-Garga declaring that one should not predict an eclipse if on an *amāvāsyā* or *pūrṇimā* there be conjunction of five planets without Mercury, that the presence of the latter foreshadows an eclipse, and that the direction of the eclipse could be pre-determined on the preceding *aṣṭamī* by observing the appearance of a drop of oil poured on the surface of water. Then follow three verses of almost identical import quoted by Utpala as Garga's. V.17, however, dismisses it as irrational. In support of XI.7, Utpala quotes two verses each from Garga and Vṛddha-Garga as agreeing with each other, the second half of the second verse being literally identical. By way of supporting the latter half of XXXII.1 that the earthquake is caused by the heaving sighs of the elephants of the quarters tired with bearing the burden of the earth Utpala quotes 3½ verses as Garga's, while Vṛddha-Garga (2 verses on XXXII.2) is represented as holding the view that by means of earthquakes gods manifest their satisfaction or dissatisfaction with good or bad conduct of the mortals. These instances seemingly indicate some sort of distinction between the two. Kern, in order to get out of this ambiguity, suggests that 'Garga and Vṛddha-Garga considered as persons are one and the same; but when Utpala quotes Vṛddha-Garga, he has another work than the *Gārgī Saṁhitā* in view.' According to him, the work cited as Vṛddha-Garga's either formed a kind of appendix to the *Gārgī Saṁhitā*, or both the works did not differ from each other more than differnt redactions of Sanskrit works are occasionally found to do.[2] Dr. P. V. Kane[3] is equally justified in concluding that Varāhamihira and Utpala had before them works ascribed to both Garga and Vṛddha-Garga and that they must have preceded Varāhamihira by some centuries. The fact

1. *JBBRAS*, 1948-49, p. 7.
2. *BS*, Introd., pp. 34-35.
3. *JBBRAS*, 1948-49, p. 8.

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of about 60 verses of Garga being quoted by Utpala in his gloss on *BJ* indicates, according to Dr. Kane, that Garga also wrote on Horāśāstra.[1]

13. *Garutmān.* He is mentioned as one of the authorities whose views formed the basis of Ṛṣabha's work on Śākuna (LXXXV.1).

14. *Kapiṣṭhala.* A writer on Śākuna whose views were followed by Ṛṣabha (LXXXV.1).

15. *Kaśyapa* or *Kāśyapa.* In XXI.2, he is named along with Garga, Parāśara, Vajra and others as a writer on rainfall. XXIV.2 represents him as having taught the moon's conjunction with Rohiṇī to the assemblage of his pupils. In many verses, Varāhamihira uses words like '*anye*' (XI.1), '*ādi*' (XVII.3; XXI.5; LXXXV.3), '*kecit*' (XXIII.4; XXXV.2) and '*eke*' (XXXII.1; XLV.5; XCIV.62), and Utpala regards them as intended for Kāśyapa. The fact that Utpala quotes Kāśyapa (he quotes at least 255 verses as Kāśyapa's) on almost all topics contained in *BS* shows that the Saṁhitā attributed to Kāśyapa was a very extensive one.

16. *Manu.* XLII.39 refers to Manu in connection with making seven or five *Śakra-kumārīs* (decorative wooden dolls attached to the banner of Indra). XLII.51 prescribes that on the fourth day after the commencement of the festival of Indra's banner should be recited the *mantras* prescribed by Manu, and verses 52-55 are evidently quoted from him. It is declared in LIII.99 that our author has in the preceding verses treated of Dakārgala on the basis of Sārasvata's work and that he would now proceed to deal with the same subject in Vṛtta metres following the work of Manu, and the commentator on LIII.102 actually cites five verses in Anuṣṭubh metre as Manu's on the art of tracing underground water. According to LIII.110, the next following verse describing certain rocks and the results of their presence at a particular site is from a *muni*, probably Manu. LV.31 contains a reference to an extensive work on temple architecture by Manu.[2] On LXXXV.18, Utpala quotes what he styles as *Manu-dharmāḥ* (one verse) about the relative strength of diurnal and nocturnal animals and

1. *JBBRAS*, 1948-49 p. 9.
2. Oppert's *List of Sanskrit MSS. in Private Libraries of South India*, I, p. 476, mentions a *Mānava-vāstu-lakṣaṇa* which must be a later work.

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birds in particular places. Of Manu as a Dharmaśāstra-writer, we shall say more subsequently. Now, as the topics in connection with which Manu is shown to have been referred to above come under the purview of a Śaṁhitā, his work must have belonged to that class. And Kern actually informs us that Manu is regarded as one of the eighteen Saṁhitā-proclaimers and is mentioned as an authority on astrology in the *Gārgī Saṁhitā*.[1] The fact that 'Utpala does not cite verses from Manu on topics like temple-architecture and Indra's banner has led Dr. Kane to conclude that 'Utpala had not before him the work of Manu on these tpoics, though Varāhamihira had it before him.'[2] The learned scholar seems to have overlooked the fact that all these topics form part of a Saṁhita and they should not be looked upon as providing subject-matter for independent treatises. Now, Utpala actually cites as Manu's six verses in Anuṣṭubh metre, i. e. five on Dakārgala and one on Śākuna. No doubt whatsoever should, therefore, be entertained as to the presence of what may be called *Mānavī Saṁhitā* before Utpala when he wrote his gloss on *BS*. Whether our Manu was identical with or distinct from the *dharmaśātra-kāra* of that name, is beyond one can say in the present state of our knowledge.

17. *Maya.* Maya is said to have imparted good and bad results of the moon's conjunction with Rohiṇī to his pupils' assemblage (XXIV.2). LV.29 and LVI.8 mention him in connection with architecture. He is also referred to in *BJ*, VII.1 regarding Āyurveda. Thus Maya appears to have written a Saṁhitā and a Horāśāstra. Maya's work on architecture appears to have been independent of his Saṁhitā. Being traditionally the architect of the demons, as Viśvakarman was of the gods, his name is associated with several treatises on Vāstuvidyā,[3] mostly hailing from the south and belonging to a very late date. Now, as Utpala in his gloss on *BS* does not quote from Maya except regarding architecture, it may be conjectured that Maya's Saṁhitā was not available in his time, while Utpala's quotation from Maya on *BJ*, VII.13 shows the presence of the latter's Horāśāstra in the former's time.

1. *BS*, Introd., p. 42.
2. *JBBRAS*, XXIV-XXV, p. 12.
3. For a list, see Acharya, *Dictionary of Hindu Architecture*, pp. 769-770.

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We learn from two verses in Upajāti[1] quoted by Utpala on II.4 that Maya, the king of Dānavas, received the science from the Sun, sage Vasiṣṭha from Viṣṇu, and Parāśara from Soma, and they (Maya, Vasiṣṭha and Parāśara) diffused it among the Yavanas. This statement is in striking agreement with the *Sūrya-siddhānta* (XIV.22-27) according to which having studied this science from the Sun himself Maya bestowed it upon the sages who flocked round him. Since the name of the Egyptian sovereign Ptolemios occurs as Turamaya in Aśoka's inscriptions, Weber[2] suggests that this Asura Maya is identical with the Ptolemios of the Greeks, who wrote the *Almagest*, and this conjecture is strongly supported by Whitney.[3] This suggestion is not likely to receive general acceptance until some more reliable evidence comes forth. Whether this Maya is the same as or distinct from the writer of that name of an architectural treatise is difficult to decide. The latter view, however, seems to be the more likely one.

18. *Nārada.* As against some writers (e.g. Parāśara) holding the view that there are 101 *ketus* and others (e.g. Garga) believing in the existence of 1000 comets, Nārada is said to have opined that there is really only one *ketu* which appears in numerous shapes.[4] Utpala quotes a verse in Anuṣṭubh from him to that effect.[5] We are further informed that Nārada heard from Bṛhaspati the moon's conjunction with Rohiṇī and its effects on the top of the Mt. Meru (XXIV.2).[6]

1. यद् दानवेन्द्राय मयाय सूर्यः शास्त्रं ददौ सम्प्रणताय पूर्वम् ।
विष्णोर्वसिष्ठश्च महर्षिमुख्यो ज्ञानामृतं यत् परमाससाद ॥
पराशरश्चाप्यधिगम्य सोमाद् गुह्यं सुराणां परमाद्भुतं यत् ।
प्रकाशयाञ्चक्रुरनुक्रमेण महर्दिधसन्ते यवनेषु तत्ते ॥

2. Weber, *History of Indian Literature*, p. 253; *Indisch Studien*, II, p. 242.

3. *Sūryasiddhānta*, Tr., p. 4.

4. शतमेकाधिकमेके सहस्रमपरे वदन्ति केतूनाम् ।
बहुरूपमेकमेव प्राह मुनिर्नारदः केतुम् ॥ XI.5.

5. दिव्यान्तरिक्षगो भौम एकः केतुः प्रकीर्तितः ।
शुभाशुभफलं लोके ददात्यस्तमयोदयैः ॥

6. सुरनिलयशिखरिशिखरे बृहस्पतिर्नारदाय यानाह ।

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Whether the astrologer Nārada is the same as the legal writer of that name cannot be decided. Weber's *Catalogue of Mss. in Berlin Library* (No. 862) mentions a *Nāradī Saṁhitā*.

19. *Paitāmaha Siddhānta* (*BS*, II, p. 22; *PS*, I.3). Varāhamihira informs us that by his time the *Paitāmaha Siddhanta* had grown inaccurate and very much mutilated as its calculations did not agree with the results arrived at by observation (*dṛkpratyaya*). This Siddhānta, as summarised by Varāhamihira, very closely followed in the footsteps of the *Jyotiṣa Vedāṅga*: it bases its calculations on the system of luni-solar quinquennial *yuga* of five years[1] and fixes the winter solstice in the beginning of Dhaniṣṭhā.[2] In one respect, however, it shows a definite advance over the *Jyotiṣa Vedāṅga*. Whereas the *Jyotiṣa Vedāṅga* dealt with the calculations relating to the sun and moon only, it appears from Brahmagupta's *Brāhmasphuṭasiddhānta* (I.2) that the *Paitāmaha Siddhānta* contained calculations of the motion of other planets (*graha-gaṇita*) also. Its following the *Jyotiṣa Vedāṅga* and growing inaccurate in Varāhamihira's time show that it must have preceded him by some centuries. This conclusion seems to be supported on some independent grounds too. Āryabhaṭa (born A.D. 476) holds Pitāmaha in high reverence and describes his own work as based on that of Svayambhū (Pitāmaha).[3] Brahmagupta (A.D. 628) also has probably the same *Paitāmaha Siddhānta* in view when he speaks of errors in calculations creeping into it due to lapse of a long time.[4] Thus the *Paitāmaha* referred to by Āryabhaṭa and

1. रविशशिनोः पञ्चयुगं वर्षाणि पितामहोपदिष्टानि ।
अधिमासस्त्रिंशद्भिर्मासैरयमो द्विषष्ट्या तु ॥ *PS*, XII.1
2. सैकषष्ट्यंशे गणे तिथिर्भमार्कं नवाहतेऽक्ष्यर्कैः ।
दिग्रसभागैः सप्तभिरूनं शशिभं घनिष्ठाद्यम् ॥ *PS*, XII.3.
3. प्रणिपत्यैकमनेकं कं सत्यं देवतां परं ब्रह्म ।
आर्यभटस्त्रीणि गदति गणितं कालक्रियां गोलम् ॥
आर्यभटीयं नाम्ना पूर्वं स्वायम्भुवं सदासद् यत् ।
4. ब्रह्मोक्तं ग्रहगणितं महता कालेन यत् खिलीभूतम् ।
अभिधीयते स्फुटं तत् जिष्णुसुतब्रह्मगुप्तेन ॥
Brāhmasphuṭasiddhānta, 1.2

A definite date for the composition of the original *Paitāmaha Siddhānta* cannot be fixed for want of sufficient data. In *PS*, XII.2 (*Divy*= *ūnaṁ Śaken-*

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Varāhamihira was extant in the seventh century A.D. when Brahmagupta composed his Siddhānta. It appears to have been lost and completely superseded by Brahmagupta's work some time before the ninth century A.D., for Utpala quotes only from this latter work without caring to retain the word *sphuṭa*. Alberuni had naturally no knowledge of the older Siddhānta and he (I, 153-4) invariably refers to the *Brāhma Siddhānta* as Brahmagupta's work. The old *Paitāmaha*, thus, seems to have been lost irrecoverably, its three modern versions being available at present, viz., Brahmagupta's Siddhānta, *Brāhmasiddhānta* forming a section of the *Viṣṇudharmottara*, and the one popularly known as *Śākalya Siddhānta*. The statement contained in I.4 that the day named after the earth's son (i. e. Mars) is not auspicious which is said to have been made in a work ascribed to Pitāmaha has led Dr. Kane[1] to believe that the *Paitāmaha* incorporated certain astrological matters also. As against this, we may humbly point out that the reference in question seems to be to the Saṁhitā attributed to Pitāmaha or Brahmā and not to his Siddhānta. This suggestion of ours is borne out by the fact that Alberuni (I, 157) mentions Brahmā (i.e. Pitāmaha) as a Saṁhitā-writer

20. *Parāśara*. Traditionally the most ancient Hindu astronomer, Parāśara is referred to several times by our author. VII.8 mentions him as having declared seven kinds of motions of Mercury and names his work *Parāśara-tantra*.[1] On III.1,5,

drakālaṁ pañcabhir=uddhṛtya śeṣa-varṣāṇām) Varāhamihira gives rule for fixing a point from which the quinquennial *yugas* are to be counted. He asks us to deduct 2 from Śakendrakāla, and to divide the remainder by 5, a process which would enable us to find out the number of *yugas* at any given time. It supposes a new *yuga* to comm nce when two Śaka years have gone. Dikshit (*HIA*, p. 151) holds that the *Paitāmaha* was composed long before the Śaka era, the introduction of Śakendrakāla being due to Varāhamihira who uses it with the sole purpose of bringing out *ahargaṇa*. Thibaut (*PS*, Introd., p. xxvi), on the other hand, thinks that this rule was contained in the *Paitāmaha* itself, for had Varāhamihira added it himself, he 'would most likely have adapted it to the same initial date as the other Siddhāntas, viz., 427 Śaka. According to this view, the *Paitāmaha* may be assigned to any date after the 3rd year of the Śaka era.

1. *JBBRAS*, XXIV-XXV, p. 15.

प्राकृतविमिश्रसंक्षिप्ततीक्ष्णयोगान्तघोरपापाख्याः ।
सप्त पराशरतन्त्रे नक्षत्रैः कीर्तिता गतयः ।। VII. 8.

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XXXII.26 also Utpala refers to the *Parāśara-tantra*. Varāhamihira (XI.1) tells us that before writing his chapter on *ketucāra* he consulted, among others, Parāśara's work on the same subject and Utpala would have us believe that Parāśara held the number of comets to be 101 (vide comm. on XI.5). On XI.36, Utpala quotes a prose passage from Parāśara according to which the results of the appearance of Calaketu occur within 10 or 18 months. According to XVII.3, Parāśara held planetary conflicts to be of four kinds[1] and a prose passage of his quoted by Utpala names them as Bhedana, Ārohaṇa, Ullekhana and Raśmi-saṁsarga.[2] XXI.2 refers to the *Garbhalakṣaṇa* (monsoonish indications) of Parāśara and XXIII.4 mentions him in connection with the predictions about rainfall. In XXIV.2, he is said to have imparted good and bad effects of the moon's conjunction with Rohiṇī to the multitude of his pupils. XXXII.3-7 refer to a myth about the cause of an earthquake and Utpala quotes a prose passage from Parāśara in support thereof. On XLIX.20, Utpala cites a prose passage as Parāśara's about the signs of swords. LX.1 states that our author will summarise the auspicious signs of cows which Parāśara imparted to Bṛhadratha whose another name was, according to the commentator, Śārṅgarava, and Utpala quotes in all fifteen verses of Parāśara on the same subject. LXXXV.3 mentions writings on Śākuna by Garga and other Yātrā-writers, and Utpala includes Parāśara among them. It will have become sufficiently clear from the above survey that Parāśara's work trod the same ground as *BS* and Alberuni (I, 157) actually refers to the Saṁhitā of Parāśara.

According to a verse quoted by Utpala on II.14, Parāśara studied Jyotiṣa from the moon (Soma) and spread it among the Yavanas. *BJ*, VII.1 calls him *Śaktipūrva*, i.e., one whose ancestor was Śakti. From Utpala's commentary on I.11 (pp. 14-18); XXXII. 3-7 it appears that Parāśara's Saṁhitā contained some legendary matters, viz., stories about the war of

1. युद्धं चतुष्प्रकारं पराशराद्यैर्मुनिभिरुक्तम् । XVII. 3.

2. भेदनमारोहणमुल्लेखनं रश्मिसंसर्गश्चेति ग्रहयुद्धं चतुर्विधमाचक्षते कुशलाः । तेषां पूर्वात्पूर्वो गरीयान् ।

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gods and demons, origin of planets, etc. One of the most striking peculiarities of Parāśara's Saṁhitā is that it was composed in mixed prose and verse. Utpala profusely cites both prose passages and verses. For prose passages vide comm. on I.11 (pp. 14-18), II (p. 24); II.20; III.1, 24, 32; IV.5; V.2, 16, 20-23, 32-34, 42, 52, 59, 60; VI.1, 2, 35; VII.9-13, 14; VIII.2, 16; IX.8, 22, 35, 36, 37-38, 39, etc. For verses vide com. on III.4, 5, 6, 35, 36, 39; V.63; VI.6, 7; VIII.18; IX. 36; X.19, 21, etc. Metrical part of Parāśara's Saṁhitā was mostly in Anuṣṭubh, though verses in Āryā and Upajāti are also to be met with. From the occurrence of Āryās, Dr. Kern[1] concludes that Parāśara's Saṁhitā is of later origin than the *Gārgī Saṁhitā*.

Parāśara is also mentioned in *BJ*, VII.1; XII.2, and *VP*, 17, 23. As we have seen above, Utpala includes Parāśara among the *yātrākāras*. He informs us that he had heard about Parāśara's works covering all the three branches of Jyotiṣa, but that he had seen only his Saṁhitā and not Jātaka (on *BJ*, VII.9).[1] Two works on horoscopy entitled *Laghu-Pārāśarī* and *Bṛhat-Pārāśarī* are available now, but they do not appear to be genuine.

21. *Pauliśa Siddhānta* (BS, II, p.22). The *Pauliśa* is one of the earliest records of scientific Hindu astronomy, and Varāhamihira makes special mention of this Siddhānta for accuracy of calculations (*PS*, I.4). It was already commented upon by one Lāṭadeva (*PS*, I.3). In the original *Pauliśa Siddhānta* (the word original is prefixed to distinguish the *Pauliśa Siddhānta* abridged in *PS* from its later recasts) there are some indications of foreign derivation, e.g., it does not establish a general *yuga* of any kind, but operates with specially constructed short periods of time, and gives the difference in longitude between Banaras and Ujjain on the one hand and Yavanapura, probably identical with Alexandria, on the other (*PS*, III,13). The name *Pauliśa* has a non-Indian ring and suggests a foreign origin. And Alberuni (I, 153) actually states that it was composed by Puliśa and was so-called from

1. *BS*, Preface, p. 33.

2. पाराशरीया संहिता केवलमस्माभिर्दृष्टा न जातकम्। श्रूयते स्कन्धत्रयं पराशरस्येति। तदर्थं वराहमिहिरः शक्तिपूर्वं स्त्रियाह।

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Pauliśa the Greek who hailed from the city of Saintra which he supposed to be the same as Alexandria. The whole controversy centres round the identity of Pauliśa the Greek. Some propose to identify him with Paulus Alexandrinus, the author of the astrological treatise *Esiagoge* which has come down to us,[1] and regard the *Pauliśa Siddhānta* as a translation of that work. Weber holds that the *Esiagoge* was itself known to the Hindus in some form or other, for it alone contains nearly all the technical terms adopted by Indian astronomy from the Greek.[2] In support of his view, he points out that the *Esiagoge* contains a passage which is in almost literal agreement with one in the *Hāyana-ratna* of Balabhadra.[3] The untenability of Weber's opinion has been demonstrated by kern who pointed out that the passage being a simple enumeration of lunar mansions and their lords is sure to be found almost literally in every work on nativity, that there is no indication of Balabhadra's borrowing this passage from Puliśa, and that the *Pauliśa* is a pronouncedly astronomical work, while the *Esiagoge* is, as confessed by Weber himself, concerned with astrology.[4]

Like other Siddhāntas, the *Pauliśa* also seems to have undergone more than one recast. The Siddhānta from which Utpala quotes in all 23 Āryās under the names Puliśācārya, *Puliśa-siddhānta* and *Pauliśa* employs entirely different methods of calculation from those of the original *Pauliśa*. Thus while the original *Pauliśa* did not establish a constant *yuga* of any kind, its adoption in the later work of that name is evident from an Āryā quoted by Utpala on *BS*, II, p. 23.[5] Whereas the duration of the year according to the original *Pauliśa* is 365d 15*gh* 30*p*, the year of its later version amounts to 365 d 15*gh* 31 *p* 30*v*. Moreover, Utpala cites a verse in Anuṣṭubh from what he calls *Mūla-Puliśa-siddhānta* (*BS*, II, p. 27). Even this *Mūla-*

1. Weber, *Ind., Stud.*, II, p. 260; *History of Indian Literature*, p. 253; Keith, *A history of Sanskrit Literature*, p. 518.
2. Weber, *History of Indian Literature*, pp. 253-54, fn. 277.
3. *Ind. Stud.*, II, p. 260.
4. *BS*, Introduction, pp. 48-49. Also cf. *HIA*, p. 164.
4. तथा च पुलिशसिद्धान्ते दिव्येन मानेन पठ्यन्ते ।
अष्टाचत्वारिंशत्पादविहीना क्रमात् कृतादीनाम् ।
अब्दास्ते शतगुणिता ग्रहतुल्ययुगं तदेकत्वम् ॥

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Puliśa-siddhānta is distinct from that compressed in *PS*. Thus, there appear to have been three different versions of the *Pauliśa*, (1) that abridged in *PS*, (2) the one from which Utpala quotes 23 Āryās, and (3) the *Mūla-Puliśa-siddhānta* from which Utpala extracts a verse in Anuṣṭubh.[1] Which of these *Pauliśas* was known to Alberuni is not possible to decide.

22. *Romaka Siddhānta* (*BS*, II, p. 22). The original *Romaka* stood close to the *Pauliśa* with regard to the accuracy of calculations (*PS*, I.4) and, like the latter, had already been commented upon by Lāṭadeva (*PS*, I.3). Its name points to the West and indeed there is some unimpeachable internal evidence indicating its derivation from some foreign source. It calculates *ahargaṇa* for the meridian of Yavanapura, i.e. Alexandria (*PS*, I.8). It adopts a luni-solar *yuga* of its own comprising 2850 years, 1050 intercalary months and 16547 omitted lunar days (*tithis*) and reducible by 150 (*PS*, I.15); it is based on the Metonic period consisting of 19 tropical years comprising 235 synodical months.[2] Again, the *Romaka* is the only Siddhānta to employ tropical revolutions of the sun and moon, while the *Sūryasiddhānta* treats of sidereal revolution only.

The *Romaka* epitomised in *PS* must be distinguished from the pseudo-*Romaka Siddhānta* now deposited in India Office Library, London. Brahmagupta states, "Having taken the rules regarding the mean motions of the sun and the moon, the moon's apogee and node, as also the mean motions of Mars, Mercury's *Śīghra*, Jupiter, Venus's *Śīghra* and Saturn from Lāṭa, elapsed years and revolutions of the *yuga* from the *Vāsiṣṭha*, *pāda* from Vijayanandin's work, and rules about the apogees, nodes, epicycles and true motions of planets from Āryabhaṭa, Śriṣeṇa transformed the *Romaka*, the mountain of jewels, into a tattered garment."[3] Thus Brahmagupta clearly disting-

1. *HIA*, p. 163; *IA*, XIX. (1890), p. 52, fn. 18.
2. Thibaut, *PS*, Introd., pp. XXVI-XXVII.
3. लाटात्सूर्यशशांकौ मध्याविन्दूच्चचन्द्रपातौ च ।
कुजबुधशीघ्रबृहस्पतिसितशीघ्रशनैश्चरान् मध्यान् ।।
युगयातवर्षभगणान् वासिष्ठान् विजयनन्दिकृतपादान् ।
मन्दोच्चपरिधिपातस्पष्टीकरणाद्यमार्यभटात् ।।
श्रीषेणेन गृहीत्वा रत्नोच्चयरोमकः कृतः कन्था ।...
Brāhmasphuṭasiddhānta, XI.48-50a.

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uishes the original *Romaka Siddhānta* from its later version made by Śrīṣeṇa both of which were known to him. The extant *Romaka* seems to be the same as or based on Śrīṣeṇa's recension.

Now as regards the date of the original *Romaka Siddhānta*. The facts that the *Romaka* had already a commentary by Lāṭa, that both Varāhamihira and Brahmagupta are silent about the name of its author and treat it as of divine origin, that the length of the year of the original *Romaka* is the same as that of Hipparchus, i.e., 365 *d* 14 *gh* 48 *p*, and that it contains calculations of only the sun and the moon, and not of planets, tend to show that the work in question was composed sometime between B. C. 150, the date of Hipparchus, and A.D. 150, the date of Ptolemy, who first established the theory of the planets in accordance with the principles of Hipparchus.[1]

23. *Ṛṣabha*. He is said to have consulted the views of Śakra, Śukra, Bṛhaspati, Kapiṣṭhala, Garutmat, Bhāguri and Devala before composing his own work on Śākuna (LXXXV.1).[2]

24. *Ṛṣiputra*. Our author names Ṛṣiputra expressly only once. XLV.82 states that the author will quote the verses composed by Ṛṣiputra describing the phenomena natural to different seasons which should not be looked upon as *utpātas* and indicate no evil effects.[3] Next twelve verses (XLV.83-94) appear to be citations from Ṛṣiputra, and it is noteworthy that all these verses are in Anuṣṭubh, the metre in which all the verses cited by Utpala as Ṛṣiputra's are composed. The information that Varāhamihira gives about Ṛṣiputra's work is meagre in the extreme; but the commentator quotes Ṛṣiputra in connection with *Rāhucāra* (V.27, 4 verses), the motion of Mercury (VII.15, 2 verses) and Venus (IX.36, 2 verses), Jovian year (VIII.1, 3 verses), planetary conflicts (XVII. 2-3, 1 verse), the moon's conjunction with the planets (XVIII.1, 1 verse), rainfall (XXI.30, 1½ verses), the moon's

1. S. B. Dikshit, The Romaka Siddhānta, *IA*, XIX. (1890), pp. 142, 439; *HIA*, pp. 158-160.

2. यच्छक्रशुक्रवागीशकपिष्ठलगरुत्मताम् ।
मतेभ्यः प्राह ऋषभो भागुरेर्देवलस्य च ।। LXXXV. 1.

3. ये च न दोषान् जनयन्त्युत्पातास्तानृतुस्वभावकृतान् ।
ऋषिपुत्रकृतैः श्लोकैर्विद्यादेतैः समासोक्तैः ।। XLV. 82.

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conjunction with Rohiṇī (XXIV.10, 3 verses), signs of rainbow ((XXXV.3, 1 verse) and omens (LXXXV.15, a prose passage comprising 12 lines). It shows that like Parāśara's, Ṛṣiputra's work was composed in mixed prose and verse and dealt with contents similar to those of *BS*. Utpala quotes him profusely in his gloss on the *Yogayātrā* also.[1]

25. *Śakra*. Hs is the first in the list of authors on Śākuna whose views were consulted by Ṛṣabha before he composed his own work on the same subject (LXXXV.1).

26. *Saptarṣi* (LXXXV.3). Varāhamihira is said to have consulted, among others, the views of the seven seers (Marīci etc. according to Utpala) also before composing his chapters on Śākuna.

27. *Sārasvata*. LIII.99 states that the preceding account of Dakārgala in Āryās is based on that of the sage Sārasvata and the commentator really quotes 31 verses in Anuṣṭubh from him. Vide Utpala on LIII.6-7 (3 verses), 9-10 (2), 16 (2), 17 (2), 21-22 (2), 24 (1), 29-30 (2½), 31-32 (2), 37 (1½), 58 (1), 63-64 (2), 67 (1½), 83 (2), 85 (2), 90 (1½), 95 (1½), 96 (1½). Sārasvata's work on Dakārgala seems to have been lost by the time of Alberuni (I, 158) who mentions him among the 'Hindu scholars of whom we know their names, but not the title of any book of theirs.'

28. *Saura Siddhānta* (*BS*, II, p. 22). XVII.1 states that the author has already dealt with the means of predicting when and how a planetary conflict would occur in the Sūrya-siddhānta section of his *Karaṇa*, i. e., *PS*.[2] Its calculations were more correct than even those of the *Pauliśa* and *Romaka* (*PS*, I.4). The great importance that Varāhamihira attaches to the *Sūryasiddhānta* is evident from the fact that while he gives the calculations of the sun and the moon separately in the case

1. For some examples, see *JBBRAS*, XXIV-XXV (1948-1949) p. 16.

2. युद्धं यथा यदा वा भविष्यमादिश्यते त्रिकालज्ञैः ।
तद् विज्ञानं करणे मया कृतं सूर्यसिद्धान्ते ॥ XVII. 1.

Sūryasiddhāntāt is another reading. P. C. Sengupta (*Sūryasiddhānta*, Engl. Tr. Introd., pp. xxix, xli; *Khaṇḍakhādyaka*, Tr. Introd., p. xviii) takes this verse to support his view that the original *Sūryasiddānta* was in an amorphous condition before the time of Varāhamihira who gave it a crystalline structure by including in it new material and constants from Āryabhaṭa's Ārdharātrika system.

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of each of the five Siddhāntas, calculations of planets are of the *Sūryasiddhānta* alone.

The *Saura* known to Varāhamihira must be distinguished from the extant work of that name. A comparison of certain astronomical calculations employed in the original *Sūryasiddhānta* with those of its modern representative reveals a fundamental difference between the two works with regard to many details.[1] Alberuni (I.153) ascribes the *Sūryasiddhānta* to Lāṭa. But this statement cannot have reference to the old Siddhānta. Varāhamihira is fully aware of Lāṭa's commentaries on the *Pauliśa* and *Romaka* and probably an independent work also as appears from the manner in which he refers to Lāṭa's view to the effect that the *ahargaṇa* is to be reckoned from sunset at Yavanapura (*Lāṭācāryeṇ—okto Yavanapure=rddh-astage sūrye*, *PS*, XV.18). This view is opposed to the *Sūryasiddhānta* according to which *dyugaṇa* is counted from midnight. Moreover, had the original *Sūryasiddhānta* been Lāṭa's work, Varāhamihira woud not have held it as of divine origin. Brahmagupta also draws distinction between the *Sūryasiddhānta* and Lāṭa. Lāṭa's hand may, however, be suspected in remodelling the original *Saura* and giving its present shape. Even if Lāṭa is responsible for the modern *Sūryasiddhānta*, his work was not known by that name at least until the ninth century A.D. as is clear from the fact that Utpala cites in his gloss on *BS* in all five verses from the *Sūryasiddhānta*[2] which are not to be found in the extant *Sūryasiddhānta*. The modern

1. Thibaut, *PS*, (Lahore ed.), Introd., pp. xiv-xxiv; *HIA*, p. 167.
2. तथा च सूर्यसिद्धान्ते ।

महतश्चाप्यधःस्थस्य नित्यं भासयते रविः ।
अर्धं शशांकबिम्बस्य न द्वितीयं कथंचन ॥ on IV.1.

तेजसां गोलकः सूर्यो ग्रहर्क्षाण्यम्बुगोलकाः ।
प्रभावन्तो हि दृश्यन्ते सूर्यरश्मिविदीपिताः ॥ on IV.2.

विप्रकर्षं यथा याति ह्यधःस्थश्चन्द्रमा रवेः ।
तथा तथास्य भूदृश्यमशं भासयते रविः ॥ on IV.3.

इन्दुना छादितं सूर्यमधोऽविक्षिप्तगामिना ।
न पश्यति यदा लोकस्तदा स्याद् भास्करग्रहः ॥
तमोमयस्य तमसो रविरश्मिपलायिनः ।
भूच्छाया चन्द्रबिम्बं च स्थाने द्वे परिकल्पिते ॥ on V.11.

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Sūryasiddhānta had, however, earned its place of honour by the time of Bhāskarācārya who quotes in his own commentary on the *Siddhāntaśiromaṇi* two verses from the *Sūryasiddhānta* which are Spaṣṭādhikāra 1-2.

Next, as regards the date of the original *Sūryasiddhānta*. Bentley held that the modern *Sūryasiddhānta* dates from the eleventh century A.D., or to be more exact, from A. D. 1091, and that there was no *Sūryasiddhānta* before that. His latter view has been successfully combated by Whitney (*Sūryasiddhānta* Tr., pp. 21ff.). Both Varāhamihira and Brahmagupta regard it as of divine origin; this tends to indicate that the Siddhānta must have preceded them by a considerably long time. S. B. Dikshit thinks that the *Romaka* was composed by A.D. 150 at the latest and regards the *Saura* as anterior to it.[1] While upholding Bentley's view regarding the lower limit of the date of the modern *Sūryasiddhānta*, P. C. Sengupta pushes back the upper limit of the original *Sūryasiddhānta* to A.D. 400, or rather 384[2], when it came from the Asura or Babylonian source.[3]

29. *Siddhasena*. According to XXI.5, some held that the days of pregnancy of clouds begin after full moon of the month of Kārttika, and the commentator would have us believe that the authority intended here is Siddhasena from whom he quotes one verse in Anuṣṭubh. He is mentioned in *BJ*, VII.7 in connection with *āyurdāya*.

30. *Śukra*, (LXXXV.1), a writer on Śākuna whose views were consulted by Ṛṣabha. XLIX.23-24 give a prescription of Uśanas for sharpening the blade of a sword. According to Utpala, Uśanas stands here for Śukra. *BS*, Ch. 49 including the prescription of Uśanas is reproduced verbatim in *YY*, XII. *YY*, XVII.1 states that the author would give in the following verses the *mantra* found in the *śāstra* of Uśanas for making umbrellas, banners and weapons specially fit for the destruction of an enemy.[4] In *YY*, V.3 is quoted

1. *HIA*, pp. 160, 168.
2. P.C. Sengupta, Introd. to *Sūryasiddhānta* Tr., pp. xxviii-xxix, xliii.
3. *Ibid*, p. xxx.
4. छत्रध्वजप्रहरणान्यभिमन्त्रितानि कुर्वन्ति शत्रुकदनं रिपुवाहिनीनाम् ।
मन्त्रं जगाद भगवानुशनाश्च शास्त्रे यल्लिख्यते तदिह पूर्वविधिक्रमेण ॥
YY, XVII.1

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Uśanas's view that a monarch desirous of victory should not undertake any march in Maghā or Svāti. Śukra or Uśanas is nowhere quoted by Utpala.

31. *Vajra.* Vajra is expressly referred to only once in *BS.* In XXI.2, it is declared that Varāhamihira consulted among others Vajra's work on monsoonish indications before writing his own section on the same subject. Utpala refers to him in connection with *ketucāra* (XI.1) and planetary conflicts (XVII.3) also but nowhere quotes from him.

32. *Vasiṣṭha.* XXII.4-8 dealing with the days of the retention of rain-foetuses appear to be Vasiṣṭha's if we are to rely on the wording of XXII.3 (*ślokāś=c—āpy=atra Vāsiṣṭhāḥ*). In XXIII.4, Vasiṣṭha along with Garga and Parāśara is represented as holding the view that if there is rain over an area of twelve *yojanas* in the beginning of the rainy season there would be good rain throughout that season. In LVII. 8, Vasiṣṭha is said to have opined that there should be a distance of four *aṅgulas* between the eye-ends and ear-holes of an image and Utpala quotes half an Anuṣṭubh as his to that effect. In several places of his gloss on *BS*, Utpala takes the words *muni* (XVIII.3, on four kinds of *grahayuddhas*; XXI.2, monsoonish indications), *ādi* (XXI.5; LV.31, on temple-architecture; LXXXV.3, on Śākuna), *anye* (V. 3; XXXII.2), etc. to stand for Vasiṣṭha and others.

He is also mentioned in *BY*, II.3 (next verse in Anuṣṭubh being his), VIII.6, IX.2, XI.9, and *BY*, XI.10-21 are quoted from him. Thus in addition to his Saṁhitā, which treated of topics similar to those of *BS*, Vasiṣṭha appears to have written a Yātrā also, both in Anuṣṭubh.

Utpala quotes two verses on II.14 according to which Vasiṣṭha received Jyotiṣa from Viṣṇu and spread it among the Yavanas. This statement is repeated in somewhat different words in *BY*, II.6 (*Aśrauṣīc=ca purā Viṣṇor=jñān-ārtham samupasthitaḥ Vacanaṁ loka-nāthasya niḥsṛtaṁ mukha-paṅkajāt*).

Vasiṣṭha has a Siddhānta also attached to his name. Although evidently more advanced than the *Paitāmaha*, it was likewise far from being accurate (*PS*, I.3), and Varāhamihira accordingly devotes to it only a short chapter consisting of thirteen verses (Ch. 2). The *Vāsiṣṭha Siddhānta*, as summarised

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by our author, gives calculations of the sun and the moon only and not of planets.

According to Alberuni (I.153), the *Vāsiṣṭha* was so called from one of the stars of the Great Bear and was composed by Viṣṇucandra. This statement is apparently based on Brahmagupta who informs us that Viṣṇucandra made a recast of the *Vāsiṣṭha* by incorporating in it certain elements from Lāṭa, (original) *Vāsiṣṭha*, Vijayanandin and Āryabhaṭa as was done by Śrīṣeṇa in the case of the *Romaka* (*Etàny=eva gṛhītvā Vāsiṣṭho Viṣṇucandreṇa, Brāhmasphuṭa-siddhānta*, XI.50), Brahmagupta, thus, makes Viṣṇucandra responsible for a fresh redaction of the *Vāsiṣṭha* and not the original work of that name, which he clearly distinguishes from each other.[1] The extant *Vāsiṣṭha Siddhānta* seems to be based on Viṣṇucandra's work.

II. *Architecture and Sculpture*

In the opening verse of Ch. 52 of *BS*, it is stated that the knowledge of Vāstuśāstra had come to be transmitted through generations of sages (*Vāstu-jñānam=ath=ātaḥ Kamala-bhavān=muni-parampar—āyātam*, LII.1), and the concluding stanza of Ch. 55 speaks of extensive treatises on temple-architecture by Garga, Manu and others (*Prāsāda-lakṣaṇam=idaṁ kathitaṁ samāsād=Gargeṇa yad=viracitaṁ tad=ih—asti sarvam, Manv=adibhir=viracitāni pṛthūni yāni tat saṁspṛśan prati may-ātra kṛto=dhikāraḥ*, LV.31). In addition to Garga, Manu, Maya and Vasiṣṭha whose views have been noticed above, we have references to Nagnajit and Viśvakarman also.

Nagnajit. LVII.4 states that according to the Drāviḍa measure given by Nagnajit the length of the face of an image should be 14 *aṅgulas*, while in LVII.15 he is represented to have have held that the length of the face including the line of the hair should be 16 *aṅgulas*. In both the cases, Utpala cites relevant verses from Nagnajit, and in his gloss on the last mentioned verse he refers to Nagnajit's *Pratimālakṣaṇa* (*Nagnajit-proktaṁ pratimālakṣaṇe āsyaṁ mukhaṁ sakeśanicayaṁ keśarekhayā sahitaṁ ṣoḍaś-āṅgulāni*). Elsewhere, he attributes

1. Thibaut, *PS* (Lahore), Introd., pp. xxxii-xxxiv; *HIA*, pp. 154-156, 187-188.

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two more works to Nagnajit, *Prāsādalakṣaṇa* (on LV.31) and *Citralakṣaṇa* (on XLV.23), the latter dealing, among other things, with various kinds of weapons. These three were probably independent works and not parts of a large compendium. A *Citralakṣaṇa*, also known as *Nagnajiticcitralakṣaṇa* or *Nagnavrata*, attributed to him, is available in its Tibetan version and has been edited by Laufer. But the Tibetan text does not deal with weapons. Hence either the Tibetan text is incomplete or it is erroneously ascribed to Nagnajit.[1]

Viśvakarman. Viśvakarman is said to have held that the height of a storey (*bhūmikā*) should be 84 *aṅgulas* ($3\frac{1}{2}$ cubits), while the same according to Maya should be 108 *aṅgulas* (LV.29), indicating that they represented two different schools of architecture, northern and southern. At another place, Viśvakarman is represented to have opined that the breadth of a couch should be a half of its length less by an eighth (LXXVIII.10). In both these places, Utpala quotes verses in support of the above statements. Viśvakarman's name is associated with a large number of treatises on Vāstuvidyā;[2] but most of them appear to be very late compilations. It is held by some[3] that the *Viśvakarma-prakāśa* is a late compilation of a work of Viśvakarman, but earlier than *BS*. In our opinion, it is a very late unintelligent compilation by an incompetent hand. Long ago, Kern[4] pointed out that *BS*, LII.30, 31 are also found in the *Viśvakarma-prakāśa*[5] and as these are the only stanzas in Āryā in the *Viśvakarma-prakāśa*, they must have been borrowed by the latter from *BS*. Many verses from *BS* are reproduced verbatim in the *Viśvakarma-prakāśa*, which seems to be later than even Utpala (9th century A.D.), for while a few verses cited by him in the name of Viśvakarman (on *BS*, LII.76) may be traced in it (VII.78), there are others that are not found in it.[6]

1. For a detailed discussion of this question see my paper in *BV*, XXII, pp. 57-62.

2. For a list of some such works, see Acharya, *Dictionary of Hindu Architecture*, s. v. Viśvakarman.

3. T. Bhattacharya, *Study on Vāstuvidyā*, p. 107.

4. *JRAS*, 1873 (VI), p. 285, fn. 2.

5. *Viśvakarma-prakāśa*, II. 169-70 in Venkateshwar Press ed. and II. 175-176 according to Banaras ed.

6. For a full discussion of this and connected problems see my paper in *Dr. Mirashi Felicitation Volume*, pp. 318-335.

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III. *Daṇḍanīti.*

According to Utpala, II.4, viz., 'It is possible that one trying to cross the ocean may reach the other shore by means of favourable wind, but one who is not a sage cannot even mentally reach the end of Kālapuruṣa, i.e., astrology, which is like a great sea,' is borrowed by our author from *Ācārya* Viśṇugupta.[1] In *BJ*, VII.7, Varāhamihira is critical of the views of Viṣṇugupta, Devasvāmin and Siddhasena regarding *āyurdāya*[2] and Utpala quotes an Anuṣṭubh from Viṣṇugupta which name he regards as synonymous with Cāṇakya (*Viṣṇuguptena Cāṇaky—āpara-nāmn—aivam = uktam*). *BJ*, XXI.3 represents Viṣṇugupta as criticising the views of Satya and Yavanas[3], and on this Utpala quotes two Āryās in the names of Cāṇakya and Viṣṇugupta (*atra Viṣṇugupta-Cāṇakyāv = āhatuḥ*). But the incorrectness of this reading of the printed editions is pointed out by Dr. Kane[4] who informs us that the reading in Mss. is '*Viṣṇuguptaś = Cāṇakya āha*' which is the correct one. *BY*, XXII.4 names Viṣṇugupta in connection with the signs of horses[5] and verses 5-11 appear to be cited from or based on Viṣṇugupta's work. Naturally these verses are not to be found in Kauṭilya's *Arthaśāstra* which is given to the condemnation of too much belief in astrology.[6] It seems likely, as suggested by Kane,[7] that there were really two Viṣṇuguptas,

1. उक्तं चाचार्यविष्णुगुप्तेन । तथाह ।
   अप्यर्णवस्य पुरुषः प्रतरन् कदाचिदासादयेदनिलवेगवशेन पारम् ।
   न त्वस्य कालपुरुषाख्यमहार्णवस्य गच्छेत्कदाचिदनृषिर्मनसापि पारम् ॥
   II.4.
2. आयुर्दायं विष्णुगुप्तोऽपि चैवं देवस्वामी सिद्धसेनश्च चक्रे ।
   दोषश्चैषां जायतेऽष्टावरिष्टं हित्वा नायुर्विंशतेः स्यादधस्तात् ॥
   BJ, VII.7.
3. न कुम्भलग्नं शुभमाह सत्यो न भागभेदाद्यवना वदन्ति ।
   कस्यांशभेदो न तथास्ति राशेरतिप्रसंगस्त्विति विष्णुगुप्तः ॥
   BJ, XXI.3.
4. *JBBRAS*, XXIV-XXV, p. 18.
5. तुरगाणामत्रार्थाः प्रक्षिप्ता विष्णुगुप्तकृताः *BY*, XXII.4.
6. नक्षत्रमतिपृच्छन्तं बालमर्थोऽतिवर्तते ।
   अर्थो ह्यर्थस्य नक्षत्रं किं करिष्यन्ति तारकाः ॥
   Arthaśāstra, IX.4, p. 351.
7. *JBBRAS*, XXIV-XXV, p. 19.

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one the author of the *Arthaśāstra* and the other a writer of an astrological treatise and that Utpala who flourished long after them erroneously confounded the two.

But there are other indications that Varāhamihira knew Kauṭilya's *Arthaśāstra* full well. He expressly refers to some Arthaśāstra text in *YY*, I.7, XIII.4 and to those skilled in Arthaśāstra in XVI.23 (*arthaviduṣaḥ*) and Utpala understands it as the *Kauṭilīya* (*arthaśāstrāṇi Cāṇakya-prabhṛtīni*, on *YY*, I.7; *arthaśāstrāṇi Cāṇaky-ādīni*, on *YY*, XIII.4). Varāhamihira (LXXVII.1-2) advises men to examine carefully the attachment or otherwise of their wives towards them and in this connection gives two instances of faithless queens killing treacherously their royal consorts, Vidūratha and Kāśirāja,[1] which are evidently borrowed from Kauṭilya who gives as many as seven such instances.[1a] In *BY*, XXX.1-3 and XXXI.1-2 are described moral weaknesses of an assailable monarch. They seem to be based on the *Kauṭilīya* VI.1 (last passage), VII. 4. In his commentary on *YY*, Utpala cites several passages from the *Kauṭilīya* in order to elucidate certain terms used by Varāhamihira.[2] *BY*, XXI.7 states that while working in ivory one should leave a length two times the periphery at the bottom of an elephant's tusk. It is literally identical with a similar stanza in the *Kauṭilīya*.[3]

XIX.11 refers to the prosperous state that the four branches of knowledge, viz., Vārtā, Trayī, Daṇḍanīti and Ānvīkṣikī reach in the year of Mercury, and Manu's Daṇḍanīti is named in this connection.[4] In *BS*, Ch. 73, Varāhamihira desperately defends women against the allegations levelled against them and LXXIII.7-11 are quotations from Manu if we are to rely on the wording of LXXIII.6 (*Manun-*

1. शस्त्रेण वेणीविनिगृहितेन विदूरथं स्वा महिषी जघान।
विषप्रदिग्धेन च नूपुरेण देवी विरक्ता किल काशिराजम् ॥
LXXVII. 1.

1a. *Arthaśāstra*, I.20, p. 41. Also cf. *Kāmandakīya Nitisārā*, VII, 51-54; *Harṣa-carita*, VI.

2. For references, vide *JBBRAS*, XXIV-XXV, p. 19.

3. *Arthaśāstra*, II.32, last verse.

4. वार्ता जगत्यवितथाऽविकला त्रयी च सम्यक् चरत्यपि मनोरिव दण्डनीतिः।
अध्यक्षरस्वभिनिविष्टधियोऽपि केचिदान्वीक्षिकीषु च परं पदमीहमानाः ॥
XIX.11.

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ātra c-oktam). But of these only LXXIII.10 is traceable to the extant *Manusmṛti* (III.58). This indicates that the text of Manu which Varāhamihira had before him was different from the extant one. Manu along with Vyāsa is referred to in *YY*, XVI.4 in connection with the ethics of war and the following verses seem to be a summary of Manu, VII.87-94, 164-7, 170-71, 181-99.

IV. *Erotics*

BS, Chs. 74, 75 and 77 deal with winning a lady's love (*subhagaṅkaraṇa*), erotic remedies (*kāndarpika*) and union of man and woman (*puṁstrīsamāyoga*) which really fall within the domain of Kāmaśāstra. It will be seen from a comparison of these chapters with Vātsyāyana's *Kāmasūtra* that the latter is one of the sources of the former.[1] The erotic remedies described in Ch. 75 are very much silmar to those prescribed in *Kāmasūtra*, VII.1.36-51. LXXVII.9-11 warn the reader against dangers to a woman's character which appear to be based on *Kāmasūtra* III.1.16, III.4, 10; III.4.33-34; III.5.9, IV.4; IV.1.9; V.5.11, etc. The signs of a loving woman described in LXXVII.4-6, 12, 15 will be found in somewhat different words in *Kāmasūtra* III.3. 24 ff.; IV. 1. These similarities apart, verse 17 of the *Vivāhapaṭala* mentions one Vātsya in connection with the proper year, month, fortnight, *tithi*, etc. of marriage. We cannot be sure about his identity with Vātsyāyana, the famous author of the *Kāmasūtra*.

V. *Philosophy*

BS, I.6-7 contain passing reference to various theories regarding the origin of the cosmos. I.6 tells us that originally there was darkness prevailing throughout the universe and from the primeval waters sprang a golden egg consisting of two halves, the earth and the heaven, and that out of this arose the creator with the sun and moon as his eyes. This seems to be an abridged version of Manu I.5-13 which are

1. See also H. C. Chakladar, *Social Life in Ancient India, A Study in Vātsyāyana's Kāmasūtra*, pp. 23-24.

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quoted by the commentator. I.7 alludes to a number of philosophical speculations. Kapila is named and the Sāṅkhya theory of *pradhāna* or *prakṛti* being the material cause of the universe is referred to. It is most probably Īśvarakṛṣṇa's *Sāṅkhyakārikā* that our author had in view, for the *Sāṅkhya sūtras* are placed by most scholars in the ninth century A. D. Utpala actually quotes verses 22-30 of the *Sāṅkhya-kārikā* in support of Varāhamihira's statement. Now, as the readings of the verses quoted by him considerably differ from those of the printed editions, they may be of great value in bringing out a critical edition of the work. Next comes Kaṇabhuj (Kaṇāḍa), the founder of the Vaiśeṣika school, advocating the atomic theory and regarding the nine *dravyas* as the source of the universe. Next are mentioned the Paurāṇic, the Laukāyatika and the Mīmāṁsā theories of the time, innate nature (*svabhāva*) and action (*karman*) respectively being the cause of the universe. The commentator cites some passages which I am unable to locate.

VI. *Religion*

A *Sāvitra-śāstra* dealing in detail with the procedure of the installation and consecration of the images of individual gods is referred to in LIX.22. We have no information whatsoever about the date or authoriship of this work; but it must have been considerably older than Varāhamihira who regards it as a great authority. This is the oldest reference to a work dealing with this subject and its discovery is bound to be of great value for the religious history of India. While commenting on LIX.19, Utpala refers to a work called *Vātulatantra* which dealt with the consecration and installation of Śiva's images.

VII. *Palmistry*

According to LXVII.1, an astrologer desirous to attain the power to reveal one's past and future by observing one's physical appearance must be well-versed in the *Sāmudra*. Utpala treats *Sāmudra*[1] as the name of a work on palmistry and cites

1. Also mentioned in *YY*, I.2.

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in all 20½ verses in Anuṣṭubha from that work. Vide com. on LXVII.3 (2 verses), 4(1), 6(2), 8(4), 9(1½) ; LXIX. 2-3(6), 6(1), 10(3). No information about the authorship of this work is available. Its discovery will throw welcome light on the history of palmistry in India.

VIII. *Metrics*

Our author was a skilled versifier. He uses not less than 63 different metres in *BS* alone, Āryā being the most favourite one. In this respect no writer chronologically anterior to him can stand a comparison. Strenzler has analysed and listed them.[1] Ch. CIII of *BS* dealing with the results of the various planetary positions in one's horoscope is couched in different metres, each stanza naming the metre it illustrates. The metres thus mentioned are listed below, the serial number of verses in which they occur being given in brackets:

Mukhacapalā (2), Jaghanacapalā (3), Śārdūlavikrīḍita (4), Sragdharā (5), Suvadanā (6), Suvṛttā (7), Śikhariṇī (8), Mandākrāntā (9), Vṛṣabhacarita (10), Upendravajrā (11), Upajāti (12), Prasabha (13), Mālatī (14), Aparavaktra (15), Vilambitagati (16), Supuṣpitāgra (17), Indravaṁśā (18), Svāgatā (19), Drutapada (20), Rucirā (21), Praharṣaṇīya (22), Dothaka (23), Mālinī (24), Bhramaravilasita (25), Mattamayūra (26), Maṇiguṇanikara (27), Hariṇapluta (28), Lalitapada (29), Śālinī (30), Rathoddhatā (31), Vilāsinī (32), Vasantatilakā (33), Indravajrā (34), Anavasitā (35), Lakṣmī (36), Pramitākṣarā (37), Sthira (38), Toṭaka (39), Vaṁśapatrapatita (40), Lalita (41), Bhujaṅgaprayāta (42), Puṭā (43), Vaiśvadevī (44), Ūrmimālā (45), Vitāna (46), Bhujaṅgavijṛmbhita (47), Udgatā (48), Gītyāryā (49), Upagīti (50), Āryā (51), Narkuṭaka (52), Vilāsa (53), Āryā gīti (54), Pathyāryā (55), Vaktra (56), Śloka (57), Anuṣṭubh (58), Vaitālīya (59), Aupacchandasika (60), Vṛṣṭiprayāta-daṇḍaka (61), Varṇaka-daṇḍaka (62), Samudra-daṇḍaka (63), Vipulā Āryā (64).

CIII.52 equates Narkuṭaka and Gītaka and Utpala tells

1. *ZDMG*, XLIV, pp. 4-15. The list has been reproduced with minor additions by H. D. Velankar, *JBBRAS*, XXIV-XXV, pp. 63-64.

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us that what is Narkuṭaka in Sanskrit is Gītaka in Prakrit (*Gītakaṁ Prākṛte, Narkuṭakaṁ Saṁskṛte, tau ca tulya-prastārau tulya-virāmāv=eva bhavataḥ*). Similarly, CIII.54 equates Āryāgīti (Sanskrit) and Skandhaka (Prakrit), Vaitālīya and Māgadhī, and Āryā and Gāthā. Though all the metres thus named are not defined, peculiar features of some of them are occasionally referred to: the number of groups (*gaṇas*) of *mātrās* is the same in both the halves of Upagīti (*Upagīter=mātrāṇāṁ gaṇavat*, CIII.50); in Āryā there ought not to be a *jagaṇa* in the odd groups, while the sixth group ought to have a *jagaṇa* or four short syllables;[1] in the Śloka the 5th syllable in all the quarters, and the 7th in the 2nd and 4th ought to be short;[2] a short syllable at the end of a line is treated as long.[3]

In the concluding verse of this chapter (CIII.64), Varāhamihira refers to copious works on metrics, but tells us that the metres enumerated and illustrated in the preceding stanzas ordinarily suffice for all practical purposes, and hence he collected together the metres pleasant to hear.[4] In CIII.3 Māṇḍavya is referred to as a writer of a work on metrics and Utpala adds the name of Rāja (perhaps a mistake for Rāta). Both these authors were older than even Piṅgala who mentions them.[5] They appear to have been joint authors of a work, for Utpala (on CIII.61) assigns a common verse to both of them.[6] Their work is no more extant.

We know hardly anything about the source from which

1. आर्याणामपि कुरुते विनाशमन्तर्गुरुर्विषमसंस्थः।
गण इव षष्ठे दृष्टः स सर्वलघुतां जनं नयति ॥ CIII.51.
2. पंचमं लघु सर्वेषु सप्तमं द्विचतुर्थयोः।
यद्वच्छ्लोकाक्षरं तद्वल्लघुतां याति दुःस्थितैः ॥ CIII. 57.
3. प्रकृत्यापि लघुर्यश्च वृतबाह्ये व्यवस्थितः।
स याति गुरुतां लोके यदा स्युः सुस्थिता ग्रहाः ॥ CIII. 58.
4. विपुलामपि बुद्ध्वा छन्दोविचितिं भवति कार्यमेतावत्।
श्रुतिसुखदवृत्तसंग्रहमिममाह वराहमिहिरोऽत्रः ॥ CIII. 64.
5. *Piṅgalachandaḥsūtra*, VII.34.
6. ... राजमाण्डव्यौ वर्जयित्वा... तथा च तावूचतुः।
सुवर्णश्चण्डवेगश्च प्लवो जीमूत एव च।
बलाहको भुजंगश्च समुद्रश्चेति दण्डकाः ॥

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Varāhamihira derived his information about metrics. Nor does Utpala enlighten us on the point. It has been suggested by Prof. H. D. Velankar[1] that Varāhamihira probably followed the *Chandaḥśāstra* of Jayadeva, for the name Narkuṭaka, which is used in CIII.52, was, according to Hemacandra's *Chandonuśāsana*, first given to that metre by Jayadeva. But it does not seem to be very likely for, as pointed out by the learned authority himself, fourteen of the metres mentioned and illustrated by our author are not known to Jayadeva, and also because the date of Jayadeva is not quite certain.

The above survey will have made it sufficiently clear that vast literatnet on various subjects flourished at the time of our author. Most of the works referred to above are lost and the value of these references can hardly be overestimated.

1. *C. K. Raja Commemoration Volume* Madras, 1948.

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APPENDIX I

POLITY AND GOVERNMENT

The *Bṛhat-saṁhita* does not add much to our knowledge of the administrative set up of the country during the period represented by it. Nonetheless our study will remain incomplete without a reference to the data, albeit scanty, bearing on this important aspect of contemporary life. The present appendix is an attempt to remove this want.

The science of government is called *daṇḍanīti*,[1] and experts therein are referred to as *nītivṛtti* and *nītijña*.[2]

Although we have a few vague references to republics (*gaṇa*, *saṅgha*[3]) and their chiefs (*gaṇamukhya*, XV.17; XVII. 24; *gaṇapa*, XXXII.18; *gaṇapati*, XVI.32), there is little doubt that hereditary monarchy was the prevailing form of government.The reference to the king of the Yaudheyas[4] shows that even avowedly republican peoples had come under the impact of the monarchical form of government. The king was the very soul of the state. It is interesting to note in this connection that some of the topics dealt with in our work are meant particularly for kings. *Antaḥpuracintā* or matters appertaining the royal harem forms an item of the contents of the Saṁhitā.[5] *Indramaha*, *Nīrājana*, *Puṣya-snana* and *Paṭṭa-lakṣana* are other topics that particularly concern the king.[6] The great impor-

1. XIX. 11. For this term see *HDS*, III, pp. 5 ff.

2. X. 17; XVI. 22. Cf. the titles like *Kāmandakīya nītisāra*, *Śukranītisāra*, *Nītivākyāmṛta*, etc. Vide also K. P. Jayaswal, *Hindu Polity*, p. 6; A. S. Altekar, *State and Government in Ancient India*, pp. 2-3.

3. V. 76 refers to the great *gaṇas* (*mahāgaṇāḥ* and the *saṅghas* of the Niṣādas. Utpala invariably, but wrongly, takes both these words to mean multitude (*samūha*).

4. IX. 11. Cf. the Bijayagadh stone inscription referring to the *Mahārāja Mahāsenāpati* of the Yaudheya-*gaṇa* (*CII*, III, No. 58).

5. II, p. 73. According to the commentator, Chs. 73-77 on the praise of women, the winning of affection, erotic remedies, perfumery and the union of man and woman are included in *antaḥpuracintā*.

6. Chs. 71-72 and 78 dealing with umbrellas, chowries and furniture are also mainly intended for the king. The procedure of worshipping Agastya is also particularly described keeping the king in view (XII.13).

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tance attached to him is obvious from his description as the root of the subject-tree whose well-being or otherwise depended on the nourishment or injury of the former.[1] He was expected to secure the welfare of his subjects, and their sufferings were regarded as due to his misdeeds (III.15). He was to mould his character in such a way as to place an ideal before others. Thus a king who was devoid of right conduct, hot-tempered, malicious, cruel and intent upon hostility was detested and believed to lead his kingdom to ruin. Varāhamihira voices Brāhmaṇical viewpoint when he includes devotion to heretical sects (*pākhaṇḍa*) and atheism among the attributes of a despised king.[2] His life was full of worries, and carefree moments of leisure were rare indeed. He had to hide his feelings, be ever-ready to fight the enemies, ponder over statecraft involving hundreds of things that have been done or are yet to be done, follow the counsel of ministers and suspect everything; his life was verily an ocean of sufferings.[3] He had to be constantly alert against danger to his life not only from his enemies but also from ministers,[4] sons[5] and queens.[6] To illustrate the last point the author quotes two traditional instances of

1. मूलं मनुजाधिपतिः प्रजातरोस्तदुपघातसंस्कारात् ।
अशुभं शुभं च लोके भवति यतोऽतो नृपतिचिन्ता ।।
XLVII.1.

The same idea is voiced in *Matsya-purāṇa*, CCXIX. 34.

2. पाखण्डानां नास्तिकानां च भक्तः साध्वाचारप्रोज्झितः क्रोधशीलः ।
ईर्ष्युः क्रूरो विग्रहासक्तचेता यस्मिन् राजा तस्य देशस्य नाशः ।।
XLV. 75.

3. आकारं विनिगूहतां रिपुबलं जेतुं समुत्तिष्ठतां
तन्त्रं चिन्तयतां कृताकृतशतव्यापारशाखाकुलम् ।
मन्त्रिप्रोक्तनिषेविणां क्षितिभुजामाशङ्कितां सर्वतो
दुःखाम्भोनिधिवर्तिनां सुखलवः कान्तासमालिङ्गनम् ।।
LXXIII.3.

4. III. 32; XVI. 41. For some instances of kings killed by ministers see *Harṣa-carita*, VI; *Yaśastilaka-campū*, III, pp. 431-32.

5. XVI. 41. For an instance of a king killed by his own son vide *Arthaśāstra*, I. 20. 15-17; for the necessity of king's protection against the princes, vide *ibid.*, I. 17.

6. XXIV. 34. For several instances of kings killed by or through the stratagems of queens, vide *Arthaśāstra*, I.20. 15-17; *Kāmandakiya-nītisāra*, VII. 51-4; *Harṣa-carita* VI; *Nītivākyāmṛta*, XXIV. 35-36; K. K. Handiqui, *Yaśastilaka* and *Indian Culture*, pp. 104-5.

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queens murdering their husbands. Thus Vidūratha, we are told, was slain by his queen with a weapon concealed in the braid of her hair, and Kāśirāja was killed by the disaffected Devī with her anklet smeared with poison.[1] This is at variance with the *Arthaśāstra* (I.2.16) and the *Kāmandakīya-nītisāra* (VII.51-54) which aver that Kāśirāja was murdered by the queen who had mixed fried rice with poison under the pretext of honey, while Vairantya was killed by the queen with her anklet treated with poison. Another source of danger to the king was the rebellion of his own armies.[2] There is yet another reference to the murder of the king by weapons (XXXIV.8).

The king was the centre of all governmental powers. Proper protection of the subjects leading them to prosperity was his primary duty.[3] He was also expected to ensure the welfare of his subjects by performing *śāntis* to ward off portentous occurrences (XLV.3, 17, 63). We have also a reference to a king, severe in punishment (*ugra-daṇḍa*, IV.11), who, according to ancient Indian writers on polity, was a source of terror to the subjects.[4]

The highest aspiration of an ancient Indian king was to attain supremacy among all the kings (LXIII.1) and the status of a *cakravartin* or universal sovereign (CIV.13) with his suzerainty accepted over the whole earth (*sārvabhauma*, XI. 58; *sakalāvaninātha*, LXVIII.18) which, of course, meant India.[5] Thus a king who worshipped Agastya with appropriate ceremonial is promised overlordship of the earth girdled by the seas and victory over his enemies (XII.17). Likewise the sacrificial fire with auspicious signs at the *homa* on the occasion of *Indramaha* is said to bring under the king's authority the earth bounded by the seas, having the rivers Gaṅgā

1. शस्त्रेण वेणीविनिगूहितेन विदूरथं स्वा महिषी जघान ।
विषप्रदिग्धेन च नूपुरेण देवी विरक्ता किल काशिराजम् ॥
LXXVII. 1.

2. *Sva-bala-kṣobha*, V. 26; *antaḥ-kopa*, V. 89; *bala-kopa*, XXX.25.

3. XIX. 14. Cf. XIX. 9 which refers to the negligence of this duty.

4. *Arthaśāstra*, I. 4. 8; *Manu*, VII 101-103; *Kāmandaka*, VI. 15.

5. Also cf. LXVII. 103 (*apratihata-pratāpā jita-ripavo mānavendrāḥ*; LXVII. 85 (*adhirājy-ārthino rājñaḥ*). For the sphere of influence of a *cakravartin* (*cakravarti-kṣetra*) see *HDS*, III, pp. 66-7; D. C. Sircar, *Studies in the Geography of Ancient and Mediaeval India*, pp. 1 ff.

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and Yamunā for her necklace, the mythical mountains of sunrise (Udayadharādhara) and sunset (Astadharādhara) for her hips and the Himavat and the Vindhyas for her breasts (XLII.32, 35). This ideal being set before them by all the kings, there were frequent wars.[1] This phenomenon of constant wars was evidently responsible for the well-known *maṇḍala* theory which, according to ancient Indian political thinkers, was the guiding principle of interstate relations.[2] This theory revolves round a king aspiring for conquest (*vijigīṣu*) whom it places in the centre and seeks to define his relations with the neighbours both in the front and the rear, Three constituents of this circle are named by our author : *vijigīṣu* (the would-be conqueror), *ākranda* (an ally in the rear whose kingdom is separated from *vijigīṣu*'s by that of another king), *ākrandasāra* (an ally of *ākranda* with their territories separated from one another by that of another king).[3] A marching king is refered to as *yāyin*,[4] while a king against whom it is expedient to march is styled *abhiyojya* (V.84). A king defending his own capital is called *nāgara* and *paura*.[5]

Varāhamihira gives us another interesting classification of kings based on their rank in relation to one another. In the ascending order of their status they are (i) *māṇḍalika* or a vassal who bowed at the feet of his suzerain,[6] (ii) *anantarajit* or a conqueror, and (iii) *samastarājyārthin* or one aspiring for overlordship. As we have seen above, they used thrones of varying heights according to their respective status on the occasion of the ceremonial ablution called *Puṣyasnāna*.[7]

Mention is also made of a frontier-king (*prātyantika*).[8]

Such great monarchs of the earlier period as the Mauryas, the Śuṅgas and the Sātavāhanas were content with the simple

1. III. 30, 32, 35; IV. 10, 12; V. 24, 26, 57, 59, 60, 88, 95; VI. 8, etc.
2. *Arthaśāstra*, VI; *Manu*, VII. 154-58, 207 ff.; *Kāmandaka*, VIII.
3. *Vijigīṣu* :—XV. 16; XVI. 38; *ākranda* :—XVI. 7; XVII. 6, 7, 8, CIII. 61; *ākrandasāra* :—XXXIV. 22.
4. V. 33; XVIII.6, 7, 8; XXX.19; XXXIV. 22; XXXV.2.
5. *Nāgara* :—XVII. 8; XXXIV. 22; XXXVI. 2; *paura* :—XVII. 6-8; 14; XVIII.3; *pura-bhūbhṛt* / XVIII. 6.
6. IV. 15; XLII. 36. XLVII. 47; LXVIII. 23;
7. XLVII. 47. For *bhadrāsana* see *supra*, pp. 253-4.
8. LXVIII. 23. Utpala is wrong in taking *prātyantika* as the king of the cave-dwellers (*gahvara-vāsinām adhipātiḥ*). Cf. the Allahabad pillar inscription which states that Samudragupta made five *pratyanta-nṛpatis* his tributaries. Vide *CII*, III, p. 8, ll. 22-3.

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title of *rājan*. But the Guptas rejected this unpretentious style and adopted grandiose titles popularised by foreign rulers of North India. Henceforth *mahārājādhirāja*, which was adapted from the title *mahārāja rājātirāja* known to have been assumed by some Indo-Greek, Scythian, Parthian and Kuṣāṇa rulers, became the characteristic style of paramount monarchs in so far as Northern India was concerned, the titles *rājan* and *mahārāja* being relegated to the feudatory chiefs. It was in keeping with this established practice that our author styles King Dravyavardhana of Avanti *mahārājādhirājaka*.[1]

The parasol, flag-staff and chowrie were regarded as royal emblems (XVI.23).[2]

The king was assisted in the discharge of his onerous responsibilities by a large number of officials. In the description of the *paṭṭas*, houses, chowries, umbrellas and furniture[3] we have an indication of the relative ranks of some of the highest dignitaries of the state. Next to the king, these dignitaries in the descending order were : the chief queen, the crown-prince (*yuvarāja*), the commander-in-chief (*senāpati*) and the general (*daṇḍa-nāyaka*).[4] Whether the chief queen had to discharge any official functions we have no means to ascertain. But that sometimes she played a very vital role in government is illustrated by the case of the Vākāṭaka queen Prabhāvatīguptā. The commentator describes the *yuvarāja*[5] as a partner in the enjoyment of the kingdom.[6] The high position occupied by the *yuvarāja* is indicated by some Vaiśālī seals which show

1. LXXXV. 2. See *supra*, p. 39.

2. For chowries and umbrellas, see *supra*, pp. 235-6.

3. For these items, see *supra* pp. 229-30, 372 ff.; 235-6, 251-2.

4. This view is based on the measurements of the *paṭṭas*, houses, umbrellas, chowries and couches meant for these dignitaries. However, one cannot be quite certain about the relative rank of the chief queen and the crown-prince. The *paṭṭas* of both had three crests, but the width and length of the queen's was more than that of the crown-prince's. The umbrellas of both were of identical dimensions. But a smaller residence is prescribed for the queen than that for the crown-prince. This may have been due to the fact that the latter required larger accommodation as he actually participated in the administration of the kingdom while the former did not.

5. XXX. 19; XXXIV. 10; 20; XXXVI. 1; XLII. 62; XLVIII. 2; LII. 17; LXXII. 4.

6. *Yuvarājo=rdha-rājya-bhāg rāja*, on XXX. 19; *yuvarājo=rdha-bhogī rājā*, on XXXIV. 10; *yuvarājaḥ prasiddho=rdha-rājya-bhāk*, on LXXII. 4.

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that he had his own *kumāramātyas* and military officers.[1] The high rank of the *senāpati*, also called *camūpa*, *camūpati*, *camūnātha*, *balamukhya*, *balanāyaka*, *balapati*, *senādhipa* and *senānī*,[2] and of the *daṇḍanāyaka*[3] was no doubt due to the necessities of wars which appear to have been quite frequent. It is interesting to note in this connection that seals of *senāpatis* and *daṇḍanāyakas* have been found at Bhita,[4] and the *senāpati* frequently figures in the copper-plate charters of the Vākāṭakas in connection with land-grants.[5] In our work we do not come across such official disignations as the *mahābalādhikṛta* and *mahādaṇḍanāyaka* mentioned in contemporary inscriptions.

The age-old institution of the council of ministers continued to enjoy a respectable status during our period. We have numerous references to ministers called *mantrin*, *amātya*, *saciva*, *nṛpamātra* and *mahāmātya*.[6] There is also an allusion to querrel among the ministers (XVII.4). We are told that the king had to act to the counsel of the ministers (LXXXIII.3). It may be mentioned in this connection that Kāmandaka (IV. 41, 44-5; XII.51) also compares the ministers to teachers and friends who prevent the king from going astray and whose advice the king must accept.[7]

1. *ASI, AR*, 1903-04, Nos. 1, 6, 8, 12, pp. 107-8; V. R. R. Dikshitar, *Gupta Polity*, pp. 154-56.

2. *Senāpati* :—III. 21; XV. 26; XXXIV. 10; XXXV. 7; LII. 5; LXXII.4; *camūpa* :—X. 4; XVI. 13; *camūpati* :—L. 21; LXVII. 41, 58, 65; *camūnātha* :—XVI.8; XLV. 12; LXVII. 47; *balamukhya* :—XVII. 23; *balanāyaka* :—V. 29; *balapati* :—XXIX. 10; XXXIV. 13; XXXVI.1; LXXVIII. 9; *senādhipa* :—CIII. 61; *senānī* :—LXVIII. 20.

3. For the various meanings of this term, see *HDS*, III, pp. 985-6; Dikashitar, *op. cit.*, pp. 221-2; D. C. Sircar, *Indian Epigraphical Glossary*, pp. 80-1.

4. *ASI, AR*, 1911-12, Nos 31, 44-51, pp. 52, 55.

5. *CII*, V, pp. 29, 43, 58, etc.

6. *Mantrin* :—V. 29, 41, 66, 93, etc.; *amātya* :—V. 41, 69; X. 3; XVI. 28, etc.; *saciva* :—III. 32; IV. 25; V. 67, etc.; *nṛpamātra* :—V. 37 (cf. Utpala :—*nṛpamātrā-nṛpa-sadṛśa amātyāḥ*); *mahāmātya* is a variant in IX. 28, the other reading being *mahāmātra*, which also, though taken by Utpala to mean elephant-tamers (*hasti-sādhana-patiḥ*, on IX. 28; XV. 11. 19; XVI-26) more probably appears to stand for a high government Official. Se *HDS*, III, pp. 998-9.

7. Dikshitar (*op. cit.*, p. 113) thinks that the council of ministers exercised control over the king.

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The *purohita*[1] or royal priest was another important functionary of the state, his duties being primarily of a religious character. He conducted religious ceremonies for the king on such occasions as *Indramaha*, *Nīrājana* and *Puṣya-snāna*.[2] As we have seen earlier,[3] the *sāṁvatsara* (astrologer) was a *sine qua non* of the state in ancient India. Other high functionaries of the state included superintendents (*adhyakṣa*, LII.9) of various departments such as the *karmāntādhyakṣa* (LII.9) or the superintendent of government workshops and manufactories, probably corresponding to the *kārmāntika* of Kauṭilya (I.12.6; II.4.11; V.2.7), and *kośeśa* (CIII.61) or the superintendent of the royal exchequer, officers in charge of various offices (*ādhikaraṇika*, XXXVIII.2) and other officers (*adhikṛta*, LII.9; *rājādhikṛta*, X.16; *rāja-puruṣa*, LII.14; XCIV. 20; *pravara-rāja-puruṣa*, LII.8; *rāja-bhṛta*, X.18; *rājopasevin*, XXXVIII.3; *nṛpānucara*, XIX.3; *nṛpa-sevaka*, C.6). The *kañcukin* (XLII.23) or the officer-in-charge of the royal harem and the royal physician (LII.10) belonged to the personal staff of the king. The envoys (*dūta*)[4] and spies (*cara*)[5] evidently belonged to the foreign office. The *ārakṣaka* (XVI.19) was probably a police officer (*rakṣādhikṛta* according to Utpala). The *kāyastha* (LXXXVI.12) was a clerk in the revenue department of the king.[6]

Apart from the *senāpati* and *daṇḍanāyaka* mentioned above, we have references to two other army-officers also : *nāyaka* (XXXV.7) or *netṛ* (LXXXV.34) and *gajādhyakṣa* (LXXXV. 34; LXXXIX.4). The former was probably a commander,[7] and the latter the chief of the elephant forces. The *turagarakṣa* (XV.26) was probably a cavalry officer.

1. X. 13; XLV. 7; LXXVIII.9; XCIII. 9. For the importance and functions of the *purohita*, vide *Arthaśāstra*, II 9. 9-10; *Manu-smṛti*, VII. 78; *Kāmandaka*, IV. 31.

2. XLII. 30, 61; XLIII. 19; XLVII. 3, 18, 77. For these ceremonies, see *supra*, pp. 119, 180-85.

3. *Supra*, pp. 349 ff.

4. IX. 31; X. 10; XVI.18; LII. 9, etc. Cf *Arthaśāstra*, I. 16; *Manu*, VII. 63-8; *Kāmandaka*, XIII. 1-25.

5. X. 10; XVI. 18; LXXXV. 33; 34; LXXXIX. 4; XCV. 2. For details about spies, see *Arthaśāstra*, I. 11-4; *Manu*.VII. 122, 184; *Kāmandaka*, XIII. 26-51.

6. See *supra*, p. 312.

7. *Kāmandaka*, XIX. 45-53; V. R. R. Dikshitar, *op. cit.*, p. 223.

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Forts were of great importance in ancient warfare and as such all ancient Indian writers on polity devote special attention to them. The great value attached to them is evidenced by their inclusion among the seven limbs (*saptāṅgas*) of the state. Varāhamihira refers to three kinds of forts, viz., mountain-fort (*giridurga*, XVI.6. 37), water-fort (*salildurga*, XVI.6) and forest-fort (*āṭavika-durga*,[1] XVI.12).[2]

Of the four traditional limbs of the army (*caturaṅga-bala*), three, viz., infantry, cavalry and elephants, are mentioned by our author.[3]

There is a reference to the encampment of an army on march (*skandhāvāraniveśa*, XCIV.45). We are told that a ground free from ashes, charcoal, bones, sand, husk, hair, pits, burrows of crabs, burrowing animals, rat-holes and ant-hills, hard, sweet-smelling, glossy, sweet and even is suitable for military encampment (XLVII.16-17).[4]

Military operations were undertaken after the rainy season (XLIII.23). The king often led military expeditions himself. We have a beautiful picture of the commencement of a military march in XLIII.23-6. Profusely decked with a variety of ornaments, with white chowries being waved over him and accompanied by foot-soldiers, horsemen and elephants, the king launched on a military campaign amidst the sounds of musical instruments after the rainy season was over. As observed above, the craze for territorial expansion led to frequent wars. We get references to besieging and capturing towns (VII.19; X.19; XII. 19; XXX.5, 23). Mention is also made of *niyuddha* or hand-to-hand fight (XV. 23; XVI.35).

Varāhamihira affords some valuable information about weapons of war. XLV.19 states that the blazing of a *praharaṇa* forebodes a sanguinary war, while XLV.23 makes the same statement with regard to an *āyudha*. Now, as *praharaṇa* and *āyudha* are generally taken to be synonyms, there is a possibility of duplication to avoid which Utpala cites the authority of Nagnajit's *Citra-lakṣaṇa* which states that *āyudha* is a general

1. The commentator, however, takes the words *āṭavika* and *durga* as quite independent of one another.
2. For verious kinds of forts, vide *Arthaśāstra* II. 3; *Manu*, VII.70-71.
3. XIX. 3, 14; XLIII. 20, 23-26, 28; XLII. 34; LXV. 1; LXVI. 8.
4. For details about *skandhāvāra-niveśa*, vide *Kāmandaka*, XVII. 1-22

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term used to denote weapons as a whole[1] and that *āyudhas* are of three kinds, viz., (i) *praharaṇa* (swords, etc.), (ii) *pāṇi-mukta*, thrown by hand, e. g., wheel, and (iii) *yantra-mukta*, thrown by certain devices, e. g., stones, arrows and sticks. *Āyudha* isthus a general term and *praharaṇa* a kind.[2]

SWORDS. In the Khaḍga-lakṣaṇa (Ch. XLIX) section of the *Bṛhat-saṁhitā* we get some points of absorbing interest about swords (*khāḍga*,[3] *asi*,[4] *nistriṁśa*[5]). A sword measuring fifty *aṅgulas* (3 ft. $1\frac{1}{2}$ inch) in length was considered to be the best while the shortest measured 25 *aṅgulas* (1 ft. $6\frac{3}{4}$ inch).[7] As a general rule a flaw (*vraṇa*) on a spot of the sword corresponding to an odd number of digits was deemed inauspicious, while that on a spot corresponding to an even number, lucky. But flaws shaped like a *bilva* fruit, Vardhamāna figure, umbrella, the *liṅga*, earring, lotus banner, weapon or Svastika were held to be favourable, and those like a lizard, crow, heron, carrion bird, headless trunk, or scorpion, and numerous flaws along the upper edge (*vaṁśa*) were regarded as ill-ominous. Similarly, a sword that has a cleft, is too short, blunt, broken at the upper edge, unpleasing to eyes and mind,

1. *Śastra* is another word used in the same general sense. Cf. IV.21; V. 83, 88; VI. 5; XI. 4, etc.

2. ननु जलमांसार्द्रज्वलने नृपतिवधः प्रहरणे रणो रौद्र इत्यस्य निर्देशस्य आयुधज्वलनसर्पणस्वनाः केशनिर्गमनवेपनानि वा वैकृतानि यदि वायुधेऽपराण्याशु रौद्ररणसङ्कुलं वदेदित्यनेन सह केचिद् द्विरुक्तिं चोदयन्ति यथा यत्प्रहरण-ज्वलने फलमुक्तं तदेवायुधज्वलने न च प्रहरणानामायुधानां च भेदोऽस्तीति। अत्रोच्यते। नग्नजिता चित्रलक्षणे आयुधानां त्रयो भेदा अभिहिताः। प्रहरणानि, पाणिमुक्तानि यन्त्रमुक्तानि चेति। तत्र प्रहरणानि खड्गादीनि। पाणिमुक्तानि चक्रादीनि। यन्त्रमुक्तानि अश्मशरास्त्रदण्डाश्चेति। योऽयमायुध इति संज्ञा सा सर्वव्यापिनी। Utpala on XLV. 23.

3. Cf. *YY*, XII which is a verbatim reproduction of *BS*, XLIX.

4. XLIX. 1, 3, 5, 9; II, p. 73; LXVIII. 22.

5. VI. 5; XIX. 3; XLIX. 6; LXVII. 47; LXVIII. 17, 34; X L IX. 2; LXXXIX. 11.

6. XLIX. 10.

7. *Aṅgula-śat-ārddham=uttama ūnaḥ syāt pañcaviṁśatiḥ khaḍgaḥ*, XLIX.1. Cf. *Agnipurāṇa*, CXLVIII. 5-8); G. Oppert, *On the Weapons, Army Organisation, and Political Maxims of the Ancient Hindus*, pp. 24-5.

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and without resonance even when struck against an object was taken to be unlucky (XLIX.1-4).[1] It was provided with a hilt (*tsaru*,[2] XLIX.9) and kept in a scabbard (*kośa*, XLIX.5, 10). It was forbidden to unsheath a sword without reason,[3] rub it, look at one's own face in it, to tell its price or source, take its measure and touch the blade (*asi-yaṣṭi*) without precaution (XLIX.6). In case a wrought sword was too long, the desired length could be obtained by rubbing it against a file (*nikaṣa*), cutting a portion at the upper end or point being forbidden (XLIX.8).

Our author mentions with approval swords fashioned like a cow's tongue, a lotus petal (Fig. 29), a bamboo leaf (Fig. 30), an oleander leaf[4] and those with pointed (*śūlāgra*, Fig. 31) and rounded (*maṇḍalāgra*, Fig. 32)[5] tips. *Maṇḍalāgra* swords are referred to by Kauṭilya[6] and Padmagupta[7] also. We find such swords represented in sculptures from Sanchi, Bharhut, Amaravati and Nagarjunakonda.[8]

Blood, clarified butter, water and a mixture of the milk

1. For other beliefs concerning swords and their flaws, cf XLIX. 5, 9-20; for smell, cf. XLIX. 21-2.

2. According to the *Arthaśāstra*, II. 18, p. 102, handles of swords were made of the horn of rhinoceros, buffalo, of the tusk of an elephant, of wood, or of the root of bamboo.

3. The Gurkhas still observe this practice.

4. Cf. *Medinī*, quoted by Bhānuji on *Amara* II.4. 77, where *karavīra* (oleander) is given as meaning a sword.

5. गोजिह्वासंस्थानो नीलोत्पलवंशपत्रसदृशश्च ।
करवीरपत्रशूलाग्रमण्डलाग्राः प्रशस्ताः स्युः ।। XLIX. 7.

6. *Arthaśāstra*, II. 18, p. 102.

7. *Navasāhasāṅkacarita*, I. 74.

8. (a) Lotus-patal :—
Sivaramamurti, *Amaravati Sculptures*, p. 124, Pl. X, fig. 2; Naik, *Nagarjunakonda Sculptures*, p. 286, fig. 24; N. P. Joshi, Army & Weapons in Ancient India (Hindi), *Bhāratī*, Bulletin of the College of Indology, Banaras Hindu, University, No. 3 p. 16, Fig. 45.

(b) Bamboo-leaf :—
Sivaramamurti, Pl. X, fig. 1.

(c) Oleander Leaf :—
Naik, p. 288, fig. 27; N. P. Joshi, fig. 47.

(d) *Maṇḍalāgra* :—
Sivaramamurti, Pl. X, fig. 6; Longhurst, *Nagarjunakonda Sculptures*, Pls. XXX(a), XLIX (b); Naik, p. 286, fig. 23; Joshi, fig. 63; Marshall, *Sanchi*, II, Pl. XXXVII (b)

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of a mare, a she-camel and a cow-elephant were used as imbruements of swords (*śastra-pāna*). A compound of fish bile, deer-milk, horse-milk and goat-milk, blended with palm-resin, was employed for tempering swords. These are said to be based on Uśanas's precepts.[1] Two other methods of tempering a sword are also given—(1) A sword, first rubbed with gingelly oil, then smeared with an unguent compounded of the milky juice of the calotropis, goat's horn, ink, and dung from doves and mice, well heated in fire, treated with one of the above imbruements, and afterwards whetted (*śita*), it is said, will not get worked on stones;[2] (2) An iron weapon treated with a stale compound of potash of plantains with butter-milk, and then properly whetted, is said to be so hard as not to break against stones, nor get blunted on other iron objects.[3]

Varāhamihira also refers to poisoned arms (*viṣāyudha*, V.40), bow (*kārmuka*, IV. 12; *cāpa*, XXXV. LXVIII. 29; 6, 7, 8; *bāṇāsana*, XIX.3; *dhanus*, XVIII.5; XX.2; XXXV. 1, 5) with its string (*jyā*, IV.12)&; discus (*cakra*), plough (*hala*), mace (*gadā*), *musalā* (XIX.3, LIII.17) *vajra* (XX. 2; LXVIII.29), various kinds of javelin (*prāsa*, XX.2; *śūla*, LXVIII. 29); *śakti* (LXVIII.34), *pāśa*, *paraśvadha* (LXVIII.34), dagger (*kṣuraka*, XXI.15), shield (*kheṭaka*, LVII.40; LXVIII.22), mail (*varma*, XLI.6) and helmet (*karoṭi* LXVII.29).

1. इदमौशनसं च शस्त्रपानं रुधिरेण श्रियमिच्छतः प्रदीप्ताम् ।
हविषा गुणवत्सुताभिलिप्सोः सलिलेनाक्षयमिच्छतश्च वित्तम् ॥
वडवोष्ट्रकरेणुदुग्धपानं यदि पापेन समीहतेऽर्थसिद्धिम् ।
झषपित्तमृगाश्वबस्तदुग्धैः करिहस्तच्छिदये सतालगर्भैः

XLIX.23-4.

2. आर्कं पयो हुडुविषाणमषीसमेतं पारावताखुशकृता च युतः प्रलेपः ।
शस्त्रस्य तैलमथितस्य ततोऽस्य पानं पश्चाच्छितस्य न शिलासु भवेद्विघातः॥

XLIX. 25. cf. Utpala's comm.

3. क्षारे कदल्या मथितेन युक्ते दिनोषिते पायितमायसं यत् ।
सम्यक् शितं चाश्मनि नैति भङ्गं न चान्यलोहेष्वपि तस्य कौण्ठ्यम् ॥

XLIX. 26.

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APPENDIX II

JUPITER'S CYCLES OF TWELVE AND SIXTY YEARS

Two reckonings connected with the movement of Jupiter, one comprising twelve years and the other sixty, were current in ancient India. They are described in Ch. 8 of the *Bṛhat-saṁhitā*.

I. *Twelve-year Cycle of Jupiter**

The years of the twelve-year cycle were known after the *nakṣatras* in which Jupiter's heliacal rising[1] takes place between twenty-five to thirty-one days after its conjunction with the sun, in accordance with the order of the lunar months.[2] There are altogether twenty-seven lunar mansions (*nakṣatras*) beginning with Kṛttikā, and two of them are allotted to each of the twelve years of the Jovian cycle beginning with Kārttika except the fifth, eleventh and twelfth which claim three *nakṣatras* each.[3] The following table will explain the mode of determining the names of the years of the twelve-year cycle.

* VIII.1-14.

1. The heliacal rising of a superior planet is its first visible rising after its conjunction with the sun, i.e., when it is at sufficient distance from the sun to be first seen on the horizon at its rising in the morning before sun rise, or in the case of an inferior planet, e. g., Mercury or Venus, at its rising in the evening after sunset. For Jupiter to be visible the sun must be about 11° below the horizon. Vide R. Sewell and S. B. Dikshit, *Indian Calendar*, p. 37, note 2.

2. नक्षत्रेण सहोदयमुपगच्छति येन देवपतिमन्त्री ।
तत्संज्ञं वक्तव्यं वर्ष मासक्रमेणैव ॥ VIII. 1.

3. वर्षाणि कार्त्तिकादीन्याग्नेयाद् भद्रयानुयोगीनि ।
क्रमशस्त्रिभं तु पञ्चममुपान्त्यमन्त्यं च यद् वर्षम् ॥
VIII. 2.

While commenting on this verse, Utpala takes '*antya*' to mean '*last*', '*concluding*' and states that the fifth (Phālguna), eleventh (*upāntya*, Bhādrapada) and twelfth (*antya*, Āśvayuja) years of the Jovian cycle comprise three *naksatras* each :—

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The *nakṣatras* of Jupiter's heliacal rising	The names of lunar months given to Jovian years
Kṛttikā or Rohiṇī	Kārttika
Mṛgaśiras or Ārdrā	Mārgaśīrṣa
Punarvasu or Tiṣya	Pauṣa
Āśleṣā or Maghā	Māgha
Pūrvā-Phalgunī, Uttarā-Phalgunī or Hasta	Phālguna
Citrā or Svāti	Caitra
Viśākhā or Anurādhā	Vaiśākha
Jyeṣṭhā or Mūla	Jyaiṣṭha
Pūrvāṣāḍhā or Uttarāṣāḍhā	Āṣāḍha
Śravaṇa or Dhaniṣṭhā	Śrāvaṇa
Śatabhiṣaj, Pūrva-Bhadrapadā, or Uttara-Bhadrapadā	Bhādrapada
Revatī, Aśvinī or Bharaṇī	Āśvayuja[1]

The interval between two heliacal reappearances of Jupiter is about 399 days. And since in twelve solar years Jupiter rises heliacally only eleven times, in each cycle of the heliacal rising system there are only eleven *saṁvatsaras* in twelve solar years, and one of the twelve *saṁvatsaras* of the cycle is treated as expunged.

Another system of determining the names of the *saṁvatsaras* of the twelve-year cycle of Jupiter is given by Āryabhaṭa[2] and Brahmagupta.[3] It is known as the mean-sign system.

पञ्चमं फाल्गुनं वर्षं त्रिभं नक्षत्रत्रयानुयोगीनि । अन्त्यं द्वादशं चाश्वयुजं त्रिभं तस्य समीपमुपान्त्यमित्येकादशं च त्रिभम् । एवं पञ्चममुपान्त्यमन्त्यं वर्षत्रयं त्रिभम् ।

But according to another interpretation sought to be supported by Garga, Parāśara and Kāśyapa, '*antya*' should be taken to mean '*near*', not '*last*'. Thus the fifth, eleventh (*upānṭya*) and tenth (*antya*) consist of three *nakṣatras* each :—

अत्रान्य एवं व्याचक्षते यथोपान्त्यमन्त्यं चेत्यत्रान्त्यशब्दः समीपवाची । उपान्त्यस्यैकादशस्य समीपं दशमं श्रावणं न तु द्वादशमाश्वयुजमिति ।

However, the correctness of Utpala's interpretation is clearly demonstrated by the following stanza of the *Samā-saṁhitā* of Varāhamihira :—

1. गुरुरुदयति नक्षत्रे यस्मिंस्तत्संज्ञितानि वर्षाणि ।
द्विभयोगीन्याग्नेयात् त्रिभमन्त्यं पञ्चममुपान्त्यम् ।

2. *Āryabhaṭīya*, Kālakriyāpāda. 4.

3. *Brāhamasphuṭasiddhānta*, XIII. 42.

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But as shown by S. B. Dikshit, the heliacal rising system is advocated not only by Varāhamihira but by several other authorities also, viz., Parāśara, Garga, Ṛṣiputra, Vasiṣṭha-Atri, Bṛhaspati, the *Nārada-saṁhitā*, the *Muhūrta-tattva*, the *Jyotiṣa-darpaṇa* and the *Sūrya-siddhānta*.[1] This shows the higher antiquity and greater popularity of the heliacal rising system as compared to the mean-sign system enunciated by Āryabhaṭa and Brahmagupta.

The *saṁvatsaras* of the twelve-year cycle of Jupiter are referred to in several inscriptions dating from the fifth to about the end of the seventh century A.D. The names of the years are sometimes prefixed by the word *mahat*. So far as the epigraphical evidence is concerned, this feature is to be noticed only in the records belonging to Central India, Rajasthan and Orissa.[2] Two records of the Kadamba king Mṛgeśavarman (*c.* 475-490 A.D.) belonging to his 3rd and 8th regnal years are dated in the Pauṣa and Vaiśākha *saṁvatsaras* respectively.[3] The Pāṇḍaraṅgapallī grant of the 15th year of Avidheya, the Rāṣṭrakūṭa king of Mānapura, is dated in the Bhādrapada *saṁvatsara*.[4] The earliest mention of a *saṁvatsara* of Jupiter's twelve-year cycle in North India is to be found in the Khoh plate of the Parivrājaka *Mahārāja* Hastin, dated in the Gupta year 156 (475-476 A.D.) corresponding to the Mahā-Vaiśakha *saṁvatsara*.[5] Another Khoh copper-plate charter (dated Gupta 163 (482-483 A.D.), Mah-Āśvayuja *saṁvatsara*)[6] and the Majhgavan plates (dated Gupta 191 (510-511 A.D.), Mahā-Caitra *saṁvatsara*) of Hastin,[7] the Bhumara pillar inscription of Hastin and the Uccakalpa chief Śarvanātha (dated in the Mahā-Māgha *saṁvatsara*),[8] and the Khoh plates of the

1. *CII*, III, Introduction, pp. 170-71.

2. The prefix *mahat* is employed by Utpala also in his commentary on VIII. 1, p. 182.

3. *IA*, VII, p. 35; VI, p. 24.

4. *EI*, XXXVII, p. 22, text-line 28.

5. *CII*, III, p. 95, text-lines 1-2. Dr. D. C. Sircar's statement that the earliest occurrence of the reckoning in North is traceable in *Mahārāja* Hastin's Khoh copper-plate grant dated in the Gupta year 163=482-83 A. D. (*Indian Epigraphy*, p. 280) is obviously due to oversight.

6. *CII*, III, p. 102, text-lines 1-2.

7. *Ibid.*, p. 107, text-lines 1-2.

8. *Ibid.*, p. 111, text-lines 7-8.

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Parivrājaka *Mahārāja* Saṅkṣobha (dated Gupta 209 (528-529 A.D.), Mah-Āśvayuja *saṁvatsara*)[1] also refer to the cyclic years. The years of the twelve-year cycle are not mentioned in South Indian records after the sixth century A.D.[2] In North India the cycle continued to be in vogue for some time more. The Dhulev plate of *Mahārāja* Bhetti, dated in the year 73,[3] variously assigned to the Bhāṭika or Harṣa era (696 or 679-80 A.D.),[4] is the latest known record to mention a year (Aśvayuja) of the Jovian cycle of twelve years. The reckoning is now almost obsolete and is sometimes mentioned in the alamanacs only.

II. *Sixty-year Cycle of Jupiter**

The years of the Jovian cycle of sixty years are invariably referred to by their respective names and not by numbers as in the case of other reckonings. A Jovian year is the period of Jupiter's stay in a particular sign of the zodiac with reference to his mean motion. A *Bārhaspatya saṁvatsara* comprises about 361.026721 days and is thus shorter than the solar year by about 4.232 days. Consequently in every period of about 85 years a Jovian year is expunged. When two years of Jupiter begin during the same solar year, the first is regarded as omitted.[5]

The following are the names of the sixty *saṁvatsaras* of the Cycle: (1) Prabhava, (2) Vibhava, (3) Śukla, (4) Pramoda, (5) Prajāpati, (6) Aṅgiras, (7) Śrīmukha, (8) Bhava, (9) Yuvā, (10) Sudhātṛ, (11) Iśvara, (12) Bahudhānya, (13) Pramāthin, (14) Vikrama, (15) Vṛṣa, (16)

1. *CII*, III, p. 114, text-lines 1-2.

2. *EI*, XXXVII, p. 15. The latest reference to this reckoning in the Deccan is to be noticed in the Siripuram plates of the Gaṅga king Anantavarman, dated in the Mah-Āśvayuja *saṁvatsara* (*ibid.*, XXIV p. 51, text-line 13).

3. *EI*, XXX, p. 4, text-line 5.

4. *Ibid.*, pp. 3, 7; *IHQ*, XXVIII, pp. 342 ff. D. C. Sircar, *The Guhilas of Kiṣkindhā* pp. 47-48. A stone inscriptilon found at Kot in the Bharatpur State is dated in the Mah—Āśvayuja *saṁvatsara*. Vide G.H. Ojha, *Bhāratiya Prācina Lipimālā*, p. 187, note 3.

* VIII. 20-52.

5. R. Sewell and S. B. Dikshit, *Indian Calendar* , p. 33. For a list of expunged *saṁvatsaras* according to Varāhamihira from Śaka 232 (current) to Śaka 999 (current), see *ibid.*, p. 36.

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Citrabhānu, (17) Subhānu (18) Nata,[1] (19) Tāraṇa, (20) Vyaya, (21) Sarvajita, (22) Sarvadhārin, (23) Virodhin, (24) Vikṛta, (25) Khara, (26) Nandana, (27) Vijaya, (28) Jaya. (29) Manmatha, (30) Durmukha, (31) Hemalamba, (32) Vilambin, (33) Vikārin, (34) Śarvarī, (35) Plava, (36) Śokahṛt,[2] (37) Śubhakṛt,[3] (38) Krodhin, (39) Viśvāvasu, (40) Parābhava, (41) Plavaṅga, (42) Kīlaka, (43) Saumya, (44) Sādhāraṇa, (45) Rodhakṛt,[4] (46) Paridhāvin, (47) Pramādin, (48) Vikrama,[5] (49) Rākṣasa, (50) Anala, (51) Piṅgala, (52) Kālayukta, (53) Siddhārtha, (54) Raudra, (55) Durmati, (56) Dundubhi, (57) Aṅgāra,[6] (58) Raktākṣa, (59) Krodha, (60) Kṣaya (VIII. 27-52).

These sixty years were classified into twelve *yugas* of five years each, the *yugas* being known after their respective presiding divinities, viz., (1) Viṣṇu, (2) Surejya, (3) Balabhid, (4) Hutāśa, (5) Tvaṣṭr, (6) Ahirbudhnya, (7) Pitṛ, (8) Viśva, (9) Soma, (10) Śakrānala, (11) Aśvin and (12) Bhaga. The five years of these *yugas* known as (1) Saṁvatsara, (2) Parivatsara, (3) Idāvatsara, (4) Anuvatsara and (5) Idvatsara were believed to be presided over by Agni, the Sun, the Moon, Prajāpati and the spouse of the daughter of the mountain, i.e., Śiva, respectively (VIII.24). It was believed that there would be good rainfall in the first year of a *yuga*, rain only in the first half of the rainy season in the second year, excessive rain in the third year, rain only in the

1. As pointed out by Sudhakara Dvivedi (*BS* with Utpala's commentary, p. 201 n.), in the popular astrological works the name of this cyclic year is given as Pārthiva, and consequently modrrn scholars replace *na tacca* for *nataṁ ca* of the original (VIII. 35).

2. Now-a-days it is commonly known as Śubhakṛt. Śokakṛt is a variant for Śokahṛt. Vide *BS*, p. 203, notes 1-2.

3. Now it is popularly called Śobhakṛt. Vide *ibid.*, note 1.

4. Now commonly known as Virodhin. *Ibid.*, p. 204 note.

5. In all the popular astrological treatises, it is called Ānanda, Consequently modern scholars read *Pramādy=ath—Ānandam=atah paraṁ yat* in place of *Pramādinaṁ Vikramam=apy=ato=nyat* in verse 45 and *tatparah* in place of *Vikramaḥ* at the beginning of verse 47. *Ibid.*, p. 205 note.

6. Now it is generally calld Rudhirodgārin and therefore some scholars read *Udgārī-saṁjñaṁ* in place of *Aṅgāra-saṁjñaṁ* in the beginning of verse 50. *Ibid.* p. 207 note.

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latter half of the season in the fourth year and scanty rain in the fifth year (VIII.25). Of the twelve *yugas*, the first four were regarded as very auspicious, the next four as middling and the last four as the worst (VIII.26). The auspicious and inauspicious happenings of all the sixty years of the reckoning are described at length (VIII. 27-52).

According to Varāhamihira (VIII.27), Prabhava, the first year of the Cycle, begins when Jupiter reappears after his conjunction with the sun having reached the first quarter of the *nakṣatra* Dhaniṣṭhā in the month of Māgha.

Varāhamihira gives the following rule for finding out the Jovian year : Multiply the number of expired Śaka years by 44 and add to the product 8589 and divide the result by 3750. Add to the quotient the number of expired Śaka years. Divide the sum by 60. The remainder will be the serial number of the expired Jovian *saṁvatsara* beginning with Prabhava at the beginning of a given Śaka year (expired). The same divided by 5 gives the *yuga* and the remainder denotes the number of *saṁvatsaras* elapsed in a particular *yuga*.[1]

According to this rule, the expired Jovian *saṁvatsara* at the beginning of Śaka 1890 (expired) would be the 54th year Raudra, the current year being Durmati ($1890 \times 44 = 83160$, $83160 + 8589 = 91749$, $91749 \div 3750 = 24$, $24 + 1890 = 1914$, $1914 \div 60 = 31$, remainder 54 (Raudra), the following year (Durmati) would be the current *saṁvatsara*). The current *yuga* is the 11th presided over by Aśvins; the first four years of the *yuga* have elapsed, the fifth one (Durmati) being current ($54 \div 5 = 10$ (the number of elapsed *yugas*), remainder 4, which is the number of the years elapsed in the current (11th) *yuga*.

In order to find out the *nakṣatra* in which Jupiter is situated in a particular *saṁvatsara* Varāhamihira asks us to multi-

[1] गतानि वर्षाणि शकेन्द्रकालाद्धतानि रुद्रैर्गुणयेच्चतुर्भिः ।
नवाष्टपञ्चाष्ट ८५८९ युतानि कृत्वा विभाजयेच्छून्यशरागरामैः ३७५० ॥
लब्धेन युक्तं शकभूपकालं संशोध्य षष्ट्या विषयैर्विभज्य ।
युगानि नारायणपूर्वकाणि लब्धानि शेषाः क्रमशः समाः स्युः ॥

VIII. 20-21.

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ply the number of expired Jovian years found out by the above method by 9 and to divide the same by 12 and then to add the product and the quotient and lastly to divide the result by 4. The quotient yields the particular lunar mansion beginning with Dhaniṣṭhā and the remainder the *pādas* in the next *nakṣatra* already traversed by Jupiter.[1]

In North India Jupiter's year theoretically commences with Jupiter's entry into a particular zodiacal sign, but in practice it is counted from Caitra śukla 1. Originally there was no difference between the Northern and Southern systems of the 60-year Jovian cycle. But later on in South India the distinction between the Jovian and solar years was ignored and consequently a southern Jovian year is the same as a solar year and there is no suppression of a *saṁvatsara* in a period of 85 or 86 years as is the case with the Northern or true system. It has no connection with the movement of Jupiter, and Pramāthin is regarded as the first year of Kaliyuga as against Vijaya in the Northern system.

According to S.B. Dikshit, the true cycle of Jupiter was in vogue in South India before Śaka 828 (905-6 A.D.), but from that year according to the *Ārya-siddhānta*, or from Śaka 831 (908-9 A.D.) according to the *Sūrya-siddhānta*, the expunction of the *saṁvatsaras* was altogether neglected, with the result that the 60-year cycle in the South became luni-solar from that year. At present the northern *saṁvatsara* has advanced by 12 years over the southern one.[2]

To find out the Jovian *saṁvatsara* according to the Southern luni-solar system one has to add 12 to the number of expired Śaka years and divide it by 60, the remainder being the number of the current year of the reckoning beginning with Prabhava. According to another rule, one has to add 12 to the number of expired Kali years and then to divide the sum by 60, the remainder being the number of expired cyclic year beginning with Prabhava.[3]

1. एकैकमब्देषु नवाहतेषु दत्त्वा पृथग् द्वादशकं क्रमेण ॥
हृत्वा चतुर्भिर्वसुदेवताद्यान्युडूनि शेषांशकपूर्वमब्दम् ॥
VIII. 22.

2. Sewell and Dikshit, *l. c.*, p. 37.

3. G. H. Ojha, *l. c.*, p. 188 and note 3.

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The 60-year cycle is rather rarely employed in North Indian inscriptions, but in South India it is in daily use even to this day. The Mahākūṭa pillar inscription of the Cālukya king Maṅgaleśa dated in the Siddhārtha year[1] is regarded as the earliest genuine record referring to a year of the 60-year cycle of Jupiter. According to some scholars, however, the use of the 60-year cycle at a much earlier date is attested by two Nagarjunakonda inscriptions of the Ikṣvāku kings Vīrapuruṣadatta and his son and successor Ehuvula Śāntamūla (late third-early fourth century A.D.).[2] In that case the view of Burgess that the years of the Jovian cycle were first introduced about 349 A.D.[3] needs to be substantially modified.

1. *IA*, XIX, p. 18.

2. *EI*, XXXV, pp. 1ff.; *JOR*, XXIX, pp. 41ff. But *contra EI*, XXXVII, pp. 70 ff.

3. Sewell and Dikshit, *l. c.*, p. 36.

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APPENDIX III

TEXTUAL EVIDENCE BEARING ON RAINFALL IN ANCIENT INDIA*

Some thirty-five years ago Dr. Ganganath Jha invited the attention of Indologists to the great importance of studying ancient Indian meteorology and called upon the younger generation of scholars to take to the task of elucidating it (*Allahabad University Studies*, Vol. I (1925), pp. I-II). In spite of a gap of about forty-five years, however, the subject still offers a virgin field for study. Here is an humble attempt to fulfil this long-felt need by recording and analysing some textual evidence bearing on rainfall in ancient India.

Sources of Study—In an agricultural economy like that of India the importance of proper rainfall can hardly be exaggerated,[1] and it is quite reasonable to expect ancient Indian authors to have made observations on the climatic conditions of their country. And it is indeed gratifying to note that such observations were really made and recorded. The *Bṛhatsaṁhitā* of Varāhamihira abounds in references to the views of Garga, Parāśara, Vajra, Kaśyapa, Bādarāyaṇa, Asita-devala (or Asita and Devala) and others bearing on rainfall. Unfortunately all these works, with a very few exceptions (*e.g.* fragments of *Gārgīsaṁhitā*), are no more extant. But Bhaṭṭotpala in his commentary on the *Bṛhatsaṁhitā* entitled *Vivṛti* quotes from these authors as well as from Siddhasena, indicating thereby that works ascribed to these personages were still available in the ninth century A.D. Among the extant texts, the most exhaustive treatment of the subject is to be found in chapters XXI-XXVIII of the *Bṛhatsaṁhitā*.[2] Extracts from earlier works

* Reprinted farm *JOI*, IX, pp. 407-18.

1. *Annaṁ jagataḥ prāṇāḥ prāvṛt-kālasya c-ānnam=āyattam Yasmād=ataḥ parīkṣyaḥ prāvṛṭ—kālaḥ prayatnena* (*BS*, XXI. 1). Cf also XXI. 2-4 where Varāhamihira extols persons skilled in predicting rains. For a similar idea, cf. *Kṛṣi-Parāśara* (*KP*), verse 10.

2. Utpala informs us that cf. XXVII on 'Circle of Winds' (Vātacakra) is spurious—'*ataḥ paraṁ kecid=vātacakraṁ paṭhanti tac=ca Varāhamihira-kṛtaṁ nā bhavati yato Niṣpattir=agni-kopo vṛṣṭir=mand-ātha madhyamā śreṣṭhā Bahujala-pavanā puṣṭā śubhā ca pūrv—ādibhiḥ pavanaiḥ*, (*BS*, XXVII 13) *iti anena paunaruktyaṁ bhavati. Bahuṣv=ādarśeṣu na dṛśyate.*

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in Bhaṭṭotpala's commentary are equally useful. The *Kṛṣi-Parāśara*, also known as *Kṛṣi-saṅgraha* or *Kṛṣi-paddhati*, a work on agriculture and matters related thereto, devotes considerable space to prediction about rainfall and its measurement, etc.[1] The four Mss. of the *Meghamālā*, now preserved in the Bhandarkar Oriental Research Institute, Poona, are exclusively devoted to this subject.[2] Apart from these texts, accidental references occur in works dealing with other subjects, e.g., the *Ṛgveda*, Pāṇini's *Aṣṭādhyāyī*, Kauṭilya's *Arthaśāstra*, *Meghadūta*, Kalhaṇa's *Rājataraṅgiṇī*. The following account of ancient Indian meteorology is mainly based on these works.

Pregnancy of Clouds (*Garbha-lakṣaṇa*)—According to the beliefs current in those times the process of the formation of clouds commenced six months and a half before rains actually came : in the ornate style of the age clouds conceive (*garbha*) in autumn-winter and give birth (*prasava*) to rain 195 days (six and a half months) later. This belief seems to be as old as the *Ṛgveda*. Most probably *Ṛgveda* I.6-4 contains a reference to the formation of rain embryos and Sāyaṇa aptly interprets the verse "*Ādaha svadhām = anu punar = garbhatvam = erire dadhānā nāma yajñiyam*" by "*megha-madhye jalasya garbh-ākāram preritavantaḥ*" (cf. *JRAS*, N. S., 1871, p. 251, fn. 2). Meteorologists differed very widely as to the time when the formation of rain-embryos actually begins. It was held by some that the clouds begin to conceive after the bright half of the month of Kārttika (October-November) : *Kecid = vadanti munayaḥ*

1. Having critically analysed available data Mr. S. C. Banerji concludes that the work cannot be later than the eleventh century A.D. (*ABORI*, XXXVI (1955), pp. 2-6). J. Bentley considers it to be an 'insignificant little work' and 'a most palpable forgery' (*Asiatic Researches*, VI, p. 576), but there is hardly anything to substantiate this view. As the original Sanskrit text is not available to me, I have used its Engl. Trasl. by S. P. Raychaudhuri (*Agricultural Practices in Ancient India* (Indian Council of Agricultural Research, New Delhi, 1953), pp. 26-48).

2. These are—1. No. 844 of 1884-87, New No. 24, fol. 12; 2.407 of 1884-36, New No. 26, fol. 45. Both these works are called *Raudrī Meghamālā* and the colophon of the former represents it as a section of the *Gārgīsaṁhitā*—*'iti Śrī—Gārgīsaṁhitāyāṁ Raudri Meghamālāyāṁ garbha-saṁyogaṁ samāptam iti'*; 3.071 of 1885-92, fol. 30. It was copied in V. S. 1719 and is called *Māheśvarī Ghamālā* in the colophon; 4.073 of 1886-92, fol. 20, is called *Bhairavokta-Ghamālā* ; was copied in Śaka 1760. These Mss. differ very little from each other and are in the form of a dialogue between Śiva and Pārvatī). Apart from a number of orthographic mistakes, there is more of astrology than meteorology proper.

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Kārttika-śukl -āntam=atītya garbha-divasāḥ syuḥ (*BS*, XXI.5). Utpala also quotes a verse from Siddhasena to this effect;[1] the *Meghamālā* similarly describes the formation of rain-foetuses in Kārttika (Ms. No. 844 of 1884-87, New No. 24, folio 13, vv. 13ff). But this was not the majority view—*na ca tan=matam bahūmām* (*BS*, XXI.5): according to Garga (and Utpala adds), Vasiṣṭha, Parāśara, Ṛṣiputra and Kaśyapa marks of the pregnancy of clouds could be detected from the first day of the bright half of Mārgaśīrṣa (November-December) onwards when the moon enters Pūrvāṣāḍhā (*BS*, XXI.6). The foetuses thus formed give birth to rains 195 days later (after six months and a half) when moon is in conjunction with the same asterism as that when conception takes place.[2] The clouds formed in the bright half rain in the dark half and *vice versa*; those formed during the day bear fruit during the night and *vice versa*; those conceived at dawn bring rain in the evening and *vice versa*; and those formed in the east pour water in the west and *vice versa*; so on and so forth.[3] The clouds conceived in the beginning of Mārgaśīrṣa and in the bright half of the month of Pauṣa (December-January) give but little rain.[4] The following chart will show the months and fortnights of the formation of rain-embryos and their delivery respectively (*BS*, XXI. 9-12, and Garga quoted by Bhaṭṭotpala):

conception	*delivery*
Pauṣa kṛṣṇa (dark half)	Śrāvaṇa śukla (bright half)
Māgha śukla	Śrāvaṇa kṛṣṇa
Māgha kṛṣṇa	Bhādrapada śukla
Phālguna śukla	Bhādrapada kṛṣṇa

1. *Śukla-pakṣam=atikramya Kārttikasya vicārayet,*
Garbhāṇām sambhavam samyak sasya-sampatti-kāraṇam.

2. *Yan=nakṣatram=upagate garbhaś=candre bhavet sa candra-vaśāt, Pañcanavate dina-śate tatr—aiva prasavam=āyāti. BS*, XXI. 7. cf. *Samāsa-saṃhitā* quoted by Utpala :—*Sārdhaiḥ saḍbhir=māsaiḥ garbha-vi:ākaḥ sa nakṣatre.*

3. *Sita-pakṣa—bhavāḥ kṛṣṇe śukle kṛṣṇā dyu—sambhavā rātrcu,*
Naktam prabhavāś=c—āhani sandhyā—jātāś—ca sandhyāyām.
Pūrv—ɔdbhūtāḥ paścād=apar-otthāḥ prāg=bhavanti jimūtāḥ,
Śeṣāsv=api dikṣv=evam viparyayo bhavati vāyoś=ca. BS. XXI.8, 13.
Cf. Garga's verses (on *BS*, XXI. 8) where more details are given.

4. Utpala (on *BS*, XXI. 9) tells us that in regard to the conception of clouds and their delivery we should follow the *Amānta* reckoning—*Asmin garbha—lakṣaṇe Caitra—sit-ādayo māsā vijñātavyāḥ.*

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Phālguna kṛṣṇa	Āśvina śukla
Caitra śukla	Āśvina kṛṣṇa
Caitra kṛṣṇa	Kārttika śukla.[1]

The following are some of the auspicious marks tending to nourish rain-foetuses :—pleasant, soft, northerly, north-easterly or easterly wind; clean sky; moon and sun covered by glossy, bright and thick halo; sky overcast with large dense, smooth, needle-like or razor-shaped red, black or blue clouds and bright moon and other stars; morning or evening (*pūrva*-or *apara-sandhyā*) accompained by rainbow, rumbling of thunder, lightning and appearance of mock-sun; birds and animals with pleasant sounds in the north, north-east or east; large, soft-rayed and unhurt planets moving in the *pradakṣiṇa* order (to the north of asterism) ; trees with their sprouts unhurt ; men and quadrupeds happy (*BS*, XXI. 14-18, Cf. Parāśara quoted by Utpala). Clouds resembling pearls or silver or having complexion of tobacco, lotus or collyrium and of the shape of aquatic animals foretell profuse rain; those scorched by fierce rays of the sun and accompanied by soft breeze pour excessive water at the time of delivery (*prasava-kāla*).[2] Next are enumerated symptoms appearing in particular months which tend to nourish rain-embryos :—

Mārgaśīrṣa (Nov.-Dec.)—absence of severe cold } red glow of horizon in morning and evening,
Pauṣa (Dec.-Jan.)—absence of thick frost } and clouds accompanied by haloes.

Māgha (Jan-Feb.)—strong winds, sun and moon with their light obscured by frost, too much cold, appearance of clouds at sunrise and sunset.

Phālguna (Feb.-March)—rough and violent gale, glossy and floating clouds, incomplete haloes round sun and moon, tawny or coppery sun.

Caitra (March-April)—wind, clouds, rain and haloes.

Vaiśākha (April-May)—clouds, winds, rain, lightning and thunder.[3]

1. Cf. *Saṁāsa-saṁhitā* (Utpala on *BS*, XXI. 7)/—*Pauṣ—āsitapakṣ-āyaiḥ Śrāvaṇa—śukl-ādayo vinirdeśyāḥ*. Cf also Parāśara quoted on *BS*, XXI. 13.
2. *BS*, XXI. 22-24. See also 3 verses from *Samāsa-saṁhitā* quoted by Utpala.
3. *BS*, XXI, 19-22. Cf. *Samāsa-saṁhitā* :—
Śastāni Mṛgamāsā=chita-hima-tāmra-megha-kṛtāni,
Stanita-tadij=lala-māruta-ghana-tāmrāṇy=atiśyaṁ tu Vaiśākhe.

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The following signs indicate a miscarriage of rain-embryos and tend to destroy all chances of rain foreseen from the phenomena described above :—fall of meteors, lightning, dust-storm, burning of the quarters (*digdāha*), earthquake, clouds having the appearance of cities, comets, planetary conflicts, thunder, marks of blood, oil, ghee, etc. (Utpala—*rudhir-ādi-vaikṛtaṁ vikāraḥ rakta-māṁsa-vasā-ghṛta-tail-ādi-varṣaṇam*) in rain-water, rainbow and appearance of Rāhu as well as the other three portents, *viz.*, celestial, atmospheric and terrestirial (cf. Parāśara quoted by Utpala on *BS*, XXI.25-26 :—*tathā ca Parāśarah, teṣām grahāṇām = uday-āstamay-olkā-nirghāt-āśani pāta-gandharva-nagara-digdāh-ārka-raśmi-varṇa-vikāra-bhū-calana-prādurbhāvo varṣāsv = abhāvāya*). Utpala tells us that if any of these phenomena appear immediately after the formation of rain-embryos, then there is little chance of resultant rainfall (on *BS*, XXI.26—*etad = uktaṁ bhavati, garbhe dṛṣṭe yadi paścād = uktānāṁ = anyatamo bhavati tadā garbho hato yasya samanantaraṁ paścād = utpāta-sambhavo n-ānya iti*). Besides, the signs just reverse of those general and special phenomena indicative of rainfall, described above, minimise chances of rain.[1]

It is further observed that the cloud-foetuses formed in any of the six months from Mārgaśīrṣa to Vaiśākha when the moon enters any of the five asterisms, *viz.*, Pūrva- and Uttara-Bhadrapadā, Pūrva- and Uttarāṣāḍhā and Rohiṇī, give profuse rain; an embryo formed in any month in the asterisms Śatabhiṣaj or Āśleṣā or Ārdrā or Svāti or Maghā develops and rains for many days, whereas the foetuses destroyed by the celestial, atmospheric and terrestrial portents indicate absence of rain for those very days[2]; that formed in Mārga-

According to Kaśyapa quoted by Utpala one should examine cold, clouds, wind, solar and lunar haloes and should accordingly predict rain in the month of Śrāvaṇa; lightning, rain, thunder and easterly wind in Phālguna augur good rain in Bhādrapada; trees teeming with plenty of flowers and fruits, winds scattering sand, cold, rain and clouds in Caitra indicate profuse rains in Āśvayuja; soft easterly winds and fast southerly winds in Vaiśākha are indicative of rain in Kārttika.

1. *BS*, XXI. 27 :—*Svartu-svabhāva-janitaiḥ sāmānyair = yaiś = ca lakṣaṇair = vṛddhiḥ, Garbhāṇāṁ viparītais = tair = eva viparyayo bhavati.*

2. Utpala on *BS*, XXI. 29:—*eteṣāṁ madhyād = ekatamena nakṣatreṇa sambhūtaḥ śubhaḥ śubha = phalo bhavati sa ca bahūn divasān puṣṇāti prabhūtāni alāni puṣṭim nayati...etad = uktaṁ bhavati, hatas = tāvanti eva dināni na varṣati.*

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śīrṣa (Nov.-Dec.) rains for eight days; that in Pauṣa (Dec.-Jan.) for six days; that in Māgha (Jan.-Feb.) for sixteen days; that in Phālguna (Feb.-March) for twenty-four days; that in Caitra (March-April) for twenty days; and that in Vaiśākha (April-May) for three days only.[1] A rain-embryo accompanied by all the five concomitants, *viz.*, wind, water, lightning, thunder and cloud, rains profusely over an expanse of one hundred *yojanas*; that accompanied by four phenomena over fifty *yojanas*; that having only three phenomena rains over an area of twenty-five *yojanas*; one accompanied by two over twelve *yojanas* and a half; and that by one only over five *yojanas*[2] (cf. *Meghadūta*, I. 5—*Dhūma-jyotiḥ-salila-marutāṁ sannipātaḥ kva meghaḥ*, where four of the five concomitants are enumerated); but too much rain at the time of the conception tends to its destruction (*BS*, XXI.34) and produces a drizzle at the time of delivery (*ibid*, XXI.37). If however, a fully developed rain-embryo does not deliver rain at its proper time after one hundred and ninty-five days, it gives hail-stones at the time of second conception, for, like cow-milk kept for a long time, water also becomes hard after crossing its time.[3]

The four days commencing with the 8th of the bright half of Jyeṣṭha (May-June) are regarded as retainers of wind (*vāyu-dhāraṇā divasāḥ*) and these accompanied by soft, northerly or southerly or easterly wind as also glossy clouds favour good rain; whereas a rain in the same month and fortnight (Jyeṣṭha śukla) in the four asterisms, *viz.*, Svāti, Viśākhā, Anurādhā, and Jyeṣṭhā, indicates absence of rain in Śrāvaṇa (July-

1. *Mṛga-mās-ādiṣv=aṣṭau ṣaṭ ṣoḍaśa viṁśatis=catur-yuktā,*
Viṁśatir=atha divasa-trayam=ekatama=ṛkṣeṇa pañcabhyaḥ.

BS, XXI. 30.

Utpala tells us that this rule is an exception to *BS*, XXI. 9, *viz.* foetuses formed in Mārgaśirṣa and Pauṣa śukla bear but little fruit:—*tathā Mṛgaśirṣ-ādyā garbhā manda-phalā ity=anena granthena Mārgaśīrṣa-jātānāṁ garbhāṇāṁ Pauṣa-śukla-jātānāṁ manda-phalatā uktā tad=apavādam=āha.*

2. *Pañca-nimittaiḥ śata-yojanaṁ tad=arddh-ārddham=eka-hānyāṭaḥ,*
Varṣati pañca-nimittād=rūpeṇ-aikena yo garbhaḥ. BS, XXI. 31.

Utpala informs us that this verse also appeared in the *Samāsa-saṁhitā*.

3. *Garbhaḥ puṣṭaḥ samaye grah-opaghāt—adibhir=yadi na ṛṣṭaḥ,*
Ātmiya-garbha-samaye karakā-miśraṁ dadāty=ambhaḥ,
Kāṭhinyaṁ yāti yathā cira-kāla-dhṛtaṁ payaḥ payasvinyāḥ.

BS, XXI. 35-36.

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August), Bhādrapada (Aug.-September), Āśvayuja (Sept.-October) and Kārttika (October-November) respectively (*BS*, XXII. 1-3).

According to Kauṭilya a forecast of rainfall could be made by observing the position, motion and pregnancy of Jupiter, the rise and setting and motion of Venus, and the natural or unnatural aspect of the sun. (*Arthaśāstra* II. 24. 7-8).

Means of ascertaining Future Rainfall :—Prospects of future rainfall could be foreseen by a careful observation in the dark half of Āṣāḍha of the size, brightness, colour, direction, etc. of the moon when in conjunction wtih Rohiṇī. For this purpose a Brahmin astrologer went to a place north or east of the town or village; stayed there three days observing fast and worshipping sacred fire; drew figures of planets and asterisms on the ground and worshipped them with oblations coupled with incense and flowers; sanctified all types of seeds with the Mahāvrata hymns and finally immersed them in water containing gold and *kuśa* grass in a pot. Only those of the seeds and their parts which get sprouted during the moon's conjunction with Rohiṇī may be expected to thrive during the year and not others (*BS*, XXIV. 4-8, 11). Water-pots already kept in the north, east, south and west were regarded as indicative of rainfall in Śrāvaṇa, Bhādrapada, Āśvayuja, and Kārttika respectively; full jars foretold good rain; while half-filled and empty ones moderate rain and drought in the months represented by them.[1]

Similarily, pots bearing names of kings, countries and different castes foretold their future prospects (*BS*, XXIV.27). Besides, the direction of the future rainfall could be determined by carefully observing the course of wind by means of a black flag four cubits in length and hoisted on a staff twelve cubits in height at the time of the moon's conjunction with Rohiṇi : for this purpose four watches (3-hour periods) of the day were regarded as representing four months beginning with Śrāvaṇa

1. *Nām—āṅkitais=tair=udak-ādi—kumbhaiḥ pradakṣiṇaṁ Śrāvaṇa-māsa-pūrvaiḥ, Pūrṇaiḥ sa māsaḥ salilasya dātā srutair=avṛṣṭiḥ parikalpyam=ūnaiḥ* (*BS*, XXIV. 26).

Cf. Utpala :—*etad=uktam bhavati, udak-kumbhaḥ Śrāvaṇamāsaḥ parikalpyaḥ; prāg Bhādrapadaḥ ; dakṣiṇa Āśvayujaḥ ; paścimasthaḥ Kārttikaḥ parikalpyaḥ iti.*

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respectively ; and parts thereof corresponded to the days in their respective months.[1] In case the wind blows simultaneously from two directions, that which shows more firmness should be taken into account. The *Kṛṣi-Paraśara* (verse 34) also prescribes the use of a flag for ascertaining the course of the wind. It shows, as pointed out by Dr. S.P. Raychaudhury (*Agricultural Practices in Ancient India*, p. 31, fn. 2), the use of weather-vanes in those days. In this connection the colour, size, etc., of the clouds were also carefully observed and these features are described at length (*BS*, XXIV. 12-25). Similar observations were made at the moon's conjunction with the asterism Svāti in the bright half of the month of Āṣāḍha (May-June) : a rain in the (i) first, (ii) second and (iii) third watches of the night indicated the abundance of (i) all crops, (ii) sesamum, green gram and black gram, and of (iii) summer crops respectively. Similarly, rain in the (i) first, (ii) second, (iii) third part of, and (iv) for the whole day indicated (i) good rain, (ii) rain coupled with insects and snakes, (iii) moderate rain, and (iv) timely rains respectively. If there are snowfall, strong and speedy winds, continuous thunder and lightning at the moon's conjunction with Svāti on the seventh day of the dark half of Māgha, good rains and rich crops may be expected (*BS*, XXV).

Another method of ascertaining future prospects of rainfall and crops was to keep sanctified seeds of all types in equal quantities for the whole night of the full moon of Āṣāḍha : such of the seeds as showed an increase in weight would thrive, while those that diminish would not flourish; and such as neither increase nor decrease would thrive moderately (*BS*, XXVI.1, 10. For the method of preparing the balance for weighing the seeds see, *ibid*, XXVI.6-9).

The *Kṛṣi-Parāśara* gives detailed rules for determining the ruler and the minister of the year in question and their influence on rainfall involving astrological matters which need not be detailed here. An interesting method of determining the

1. *Ślakṣṇāṁ patākām=asitāṁ vidadhyād daṇḍa-pramāṇāṁ triguṇ-occhritāṁ ca, Ādau kṛte dig=grahaṇe nabhasvān grāhyas=tayā yoga-gate śaśāṅke, Ten-ātra māsāḥ praharair =vikalpyāḥ varṣā-nimittaṁ divasās=tad=aṁśaiḥ* (*BS*, XXIV. 9-10).

We have preferred Utpala's reading "*ten-ātra māsāḥ*" in place of "*tatr-ārddha-māsāḥ*" as given in the printed edition of the text.

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quantity of rainfall for the whole of the forthcoming year as found in the *Kṛṣi-Parāśara* is as follows: The whole of the month of Pauṣa is to be divided into twelve equal parts, each consisting of two days and a half and representing the twelve months of the year commencing with Pauṣa. The course of wind ascertained by means of a flag during these twelve parts of Pauṣa foretold rainfall in the months represented by these parts : the wind blowing from the north or from the west in any of the above-mentioned parts of Pauṣa is indicative of good rainfall in the months thus represented, whereas that blowing from the east or south foretells scanty rain ; if, on the other hand, wind does not blow in a definite direction, it would not rain at all, whilst the wind blowing at random indicates irregular rainfall. Every five *daṇḍas* (24 minutes) of Pauṣa correspond to a day of a month : the rainfall in the first half of this 5-*daṇḍa* period indicates rainfall in the daytime, whilst that in its latter half foretells rainfall in the night; so on and so forth (verses 12-23, 31-34). A shower accompanied by thunder-storm or lightning on the seventh day of the bright half of Māgha (Jan.-February) and Phālguna (Feb.-March) or the third day of the full moon in Caitra (March-April) or Vaiśākha (April-May) foreshows good rainfall and abundance of crops in that year (verses 39-40).

According to another peculiar method, in the first night of the bright half of Vaiśākha one was required to write the words "Let there be success" (*siddhir=astu*) on a rod two hundred times, and then to erect that rod on the bed of a flowing river, dipping it upto the written mark in the water and finally to mark the next morning where the water level stands: unchanged water level indicates that the rainfall during that year will be the same as that in the preceding year; if the water-level goes up or down it indicates a rainfall more or less than that of the previous year; the water level rising above the marked spot on the rod foreshows double rainfall and flood (verses 45-49).

The course of wind on the full-moon day of Āṣaḍha was to be observed carefully for ascertaining the nature of rainfall (verses 56-57) A shower or the absence thereof on the seventh day of the bright half of Āṣāḍha indicates good rainfall or drought throughout the year (verse 38).

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Signs of Immediate Rainfall :—The *Bṛhatsaṁhitā*, the *Kṛṣi-Parāśara* and other works under consideration describe at length the signs that were believed to indicate an immediate rainfall. Many of these beliefs are still current in different parts of India. Some of these phenomena are mentioned below: —the sun with dazzling brilliance and burning with intense heat at the zenith of the sky; tasteless water; sky having the complexion of a cow's eye; uncontaminated directions; moisture of salt; absence of wind; fishes coming to the banks; repeated crockings of frogs; cats scratching the earth with their nails; accumulation of rust on iron; construction of bridges on the streets by chidren; mountains appearing like heaps of collyrium; haloes of the colour of a cock's eye round the moon; ants shifting their eggs without any apparent cause; cows looking above at the sun; reluctance of domestic animals to go out of the house and their shaking ears and hoofs; dogs barking continuously looking at the sky; lightning flashing from the north-east during the daytime; appearance of mock sun and moon; cool breeze blowing from the east (*BS*, Ch. XXVIII: —*sadyovarṣalakṣaṇa*); excitation of cats, mongooses, snakes and other animals living in marshy places; rutting of young elephants; aquatic birds beginning to dry their wings ; so on and so forth (*Kṛṣi-Parāśara*, verses 63-68). That these ideas were no innovations of astrologers and were actually shared by the people is evident from the fact that they are referred to in a large number of classics. Kalhaṇa, the poet-historian of Kashmir, for example, refers to the cows looking above, serpents ascending the trees, and ants moving with their eggs as foretelling an immediate rainfall :—*Uṭṭīkite gavāṁ vṛkṣa-mūrddh-āroheṇa bhoginām, Piṗīlaka-kulays-āṇḍ-opasaṅkrānty-aiva varṣaṇam* (*Rājataraṅgiṇī*, VIII. 722).

Classification of Clouds :—Varāhamihira's *Bṛhatsaṁhitā*, which is the chief source of our information on the subject, does not give any classification. The *Kṛṣi-Parāśara* , however, divides the clouds into four classes :—*Āvarta*, (ii) *Saṁvarta*, (iii) *Puṣkara*, and (iv) *Droṇa*. One of these predominates over a particular year : while *āvarta* rains in particular localities only, *saṁvarta* rains everywhere ; rainfall is scanty during the predominance of *puṣkara*, whereas there is plenty of rainfall when *droṇa* is dominant (verses 24-26). As Kālidāsa referss to the

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puṣkara and *āvarta* types of clouds, this classification seems to have come into existence as early as, if not earlier than, the Gupta age (Cf. *Meghadūta, pūrvamegha*, verse 6 : *-Jātaṁ vaṁśe bhuvana-vidite puṣkar-āvartakānāṁ jānāmi tvāṁ prakṛtipuruṣaṁ kāmarūpaṁ maghonaḥ*). The popularity of this fourfold classification is apparent from references to *droṇa-megha* and *droṇa-vṛṣṭi* in Śūdraka's *Mṛcchakaṭika*, X. 26, 39. The *Meghamālā* enumerates eighty types of clouds, ten each in the Mandara, Kailāśa, Koṭa, Jaṭhara, Śṛṅgavera, Paryanta, Himavat and Gandhamādana mountains; and next it gives their names, *e.g. Prabuddha* (or *Subuddha*,), *Nandaśāla*. or *Mandaśāla, Kanyada, Pṛthakśravas, Vāsuki*, etc. (Ms. No. 844 of 1884-87.New No. 24, folio-4a). These names are, however, not very clear and involve astrological details. A different type of classification appears to have been prevalent in earlier times. According to Kauṭilya (circa 4th-3rd century B.C.), there are three clouds that continuously rain for seven days; eighty are they that pour minute drops; and sixty are they that appear with sunshine:—*Trayas = sāptāhikā meghāḥ aśītiḥ kaṇa-śīkarāḥ, Saṣṭhir = āyata-meghānām = eṣā vṛṣṭis = samāhitā Vātam = ātapa-yogaṁ ca vibhajan yatra varṣati, Trīn karṣakāṁ = śca janayaṁ = statra sasy-āgamo dhruvaḥ* (Kauṭilya's *Arthaśāstra* 11. 24. 9-10).

Measurement of Rains :—Rain-gauging appears to have been prevalent in India from very early times and the earliest reference to it is to be found in Pāṇini's *Aṣṭādhyāyī* (*varṣapramāṇa*—III.4.32; *goṣpada* is referred to as the smallest measure of rainfall VI. 1.145; failure of rain or drought (*varṣa-pratibandha*) is referred to as *avagraha*, III. 3.51).[1] There were widely divergent views as to the time when one should start measuring rains and such other kindred matters. According to Varāhamihira, rain should be measured after the full-moon day of the month of Jyeṣṭha (May-June) when it has rained in the asterisms commencing with Pūrvāṣāḍhā :—*Jyaiṣṭhyāṁ samatītāyāṁ pūrvāṣāḍh-ādi-saṁpravṛttena, Śubham = aśubhaṁ vā vācyaṁ parimāṇaṁ c-āmbhasas = tajjñaiḥ* (*BS*, XXIII. 1). According to still another view, the quantity of rainfall should be gauged when for the first time in the season it rains sufficiently enough to make the

1. V. S. Agrawala, *India as known toPāṇini*, p, 203.

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earth free from dust or when drops of water are visible on the tips of the blades of grass.[1] The quantity of future rainfall was also to be predicted accordingly as it rained in particular asterisms in the beginning of the season.[2] It was believed that in whichever of the asterisms there was rain in the beginning, there will be repeated rains in the same asterisms (*ibid*, XXIII. 5. Cf. Utpala—*prasava-kāle Āpy-ādiṣu Pūrvāṣāḍh-ādiṣu saptaviṁśeṣv=api nakṣatreṣu yadi na pravṛṣṭaṁ tadā tv=anāvṛṣṭiḥ prasava-kāle bhavatiti*). Kaśyapa and others held that if there be rain in any area whatsoever in the beginning, one may expect good rain throughout the the season.[3] Devala, on the other hand, maintained that if it rains over ten *yojanas*, there is bound to be plenty of rain during the whole season.[4] According to Garga, Vasiṣṭha and Parāśara profuse rainfall must be expected if there be rain over an area of not less than twelve *yojanas* at the commencement of the rainy reason.[5] The lowest measure of rainfall, *gospada*, which, as we have seen, was prevalent in the time of Pāṇini (cir. B.C. 500), is conspicuous by its absence in later works. In Varāhamihira's time (6th century A.D.) the commonest measures of rainfall were *pala*, *āḍhaka* and *droṇa* : fifty *palas* made one *āḍhaka* and four *āḍhakas* constituted one *droṇa*, The rainfall was measured by means of a specially prepared (cf. *BS*, LII. 91—पलान्यपामाढकं चतुःषष्टिः Utpala—यत्र मृत्तिकानामाढकमपामम्बूनां

1. *Yena dharitrī mudrā janitā vā bindavas=tṛṇ-āgreṣu* ।
Vṛṣṭena tena vācyaṁ parimāṇaṁ c-āmbhasaḥ prathamaṁ ॥

BS, XXIII.3

Cf. Utpala—*varṣe=pi sati bhavatsv=api garbheṣu dhāraṇāsv=api satsu yadi pravarṣaṇa-kāle na varṣati tadā prasava-kāle vṛṣṭir=na syād=ity=ataḥ garbheṣu idam=ucyate parimāṇaṁ c-āmbhasaḥ prasava-kāle vācyam=iti* ।

2. Vide *BS*, XXIII. 6-10. Cf. Utpala on *BS*, XXIII. 3:—*Etad=uktaṁ bhavati, Pūrvāṣāḍh-ādau prathamaṁ yena nakṣatreṇa varṣaṇaṁ bhavati tn-aitajala-pramāṇaṁ loke vaktavyam, n-āpareṇa nakṣatreṇa.*

3. *Pravarṣaṇe yath-ādeśaṁ varṣaṇaṁ yadi dṛśyate* ।
Varṣā-kālaṁ samāsādya Vāsavo bahu varṣati ॥
—Kaśyapa quoted by Utpala on *BS*, XXIII. 4.

4. Devala quoted by Utpala :—
Pravarṣaṇe yadā vṛṣṭaṁ daśa-yojana-maṇḍalam ।
Varṣā-kālaṁ samāsādya Vāsavo bahu varṣati ॥

5. Garga quoted by Utpala :—
Āṣāḍh-ādiṣu vṛṣṭeṣu yojana-dvādaś-ātmake ।
Pravṛṣṭe śobhanaṁ varṣaṁ varṣā-kāle vinirdiśet ॥

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चतुःषष्टि : पलानि भवन्ति) round gauge with a diameter of one *hasta* or cubit (18 inches) and containing marks indicative of *palas* : when filled to capacity it indicated one *āḍhaka* rainfall; *Hasta-viśālaṁ kuṇḍakam = adhikṛty-āmbu-pramāṇa-nirdeśaḥ, pañcāśat palam = āḍhakam = anena minuyāj = jalaṁ patitām* (*BS*, XXII. 2).[1] These measures appear to have been in use from very ancient times. According to Kauṭilya (4th century B.C.), *sannidhātṛ* or the superintendent of treasure-house was entrusted with the duty of measuring annual rainfall and the gauge used for this purpose was also one *aratni* or cubit in diameter : *Koṣṭhāgāre varṣa-mānam = aratnimukhaṁ kuṇḍaṁ sthāpayet* (*Arthaśāstra*, II. V.7). The *Samāsasaṁhitā* (as quoted by Utpala on *BS*, XXIII.2) describes this one cubit or *āḍhaka* measurement as *Māgadha-māna* (*...jala-mānaṁ Māgadha-mānena hasta-mite*). It may thus be suggested that this system of measuring rainfall as mentioned by both Kauṭilya and Varāhamihira was prevalent in India, particularly in Magadha (South Bihar) from the fourth or third century B.C. to about the sixth century A.D.—for a period of about one thousand years. It is likely, therefore, that the Maurya and Gupta emperors introduced and popularised this system throughout the length and width of their extensive empire and consequently it became an all-India measurement.

According to Parāśara, however, the height and diameter of the rain-gauge should be 20 *aṅgulas* (15 in.) and 8 *aṅgulas* (6 in.) respectively and when it is filled to the brim it measures one *āḍhaka* :—*Same viṁś-aṅgul-ānāhe dvi-catuṣk-āṅgul-occhrite, Bhāṇḍe varṣati sampūrṇaṁ jñeyam = āḍhaka-varṣaṇam* (vide Parāśara as quoted by Utpala on *BS*, XXI. 32).

Another similar method was of measuring the rainfall on the ground itself. Parāśara informs us that if the rain-water measures one *dhanuṣ* or four cubits it equals one *droṇa*: *Dhanuḥ pramāṇam medinyā vindyād = droṇ-ātivarṣaṇam* (vide Parāśāra quoted by Utpala on *BS*, XXI. 32).

A different interpretation of the measurement *āḍhaka* is to be met with in the *Kṛṣi-Parāśara* : a quantity of water spreading over an expanse of one hundred *yojanas* square and

2. The measure *droṇa* is referred to in *BS*, XXI. 32, 34; XXIII. 6-9.

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thirty *yojanas* in height equals one *āḍhaka* (*Agricultural Practices in Ancient India*, p. 30, fn. 2). This description is not quite clear.

The *Kṛṣi-Parāśara* prescribes the use of a vessel with 12 *aṅgulas* (9 in.) for its length, breadth and height for measuring rains. The vessel could be made of the wood of *calita* (*Dillenia Indica*). mango, (*Mangifera Indica*) or *punnāga* (*Calophyllum inophyllum*) trees. The use of the wood of wood-apple (*Feronia elephantinum*), *pakur* (*Ficus infectoria*) or *nimba* (*Melia Indica*) trees was forbidden for the measuring vessel (*Kṛṣi-Parāśara*, verse 220).

According to a definition found in the *Meghamālā* however, a continuous rain for seven nights together was called *droṇa*:— *Droṇa-saṅkhyā ca vijñeyā sapta-rātraṁ pravarṣati* (Ms. No. 844 of 1884-87, New No. 24, fol. 1*b*, verse 30).

Kauṭilya informs us that if one-third of the total annual rain came both during the commencement and closing months of the rainy season (Śrāvaṇa and Kārttika) and two-thirds in the middle (Bhādrapada and Āśvayuja) it augured good and prosperous crops :—*Varṣā-tribhāgaḥ pūrva-paścima-māsayoḥ dvau tri-bhāgau madhyamayoḥ suṣamā-rūpam* (*Arthaśāstra*, II. 24-6). This coupled with the evidence of the *Bṛhatsaṁhitā* discussed above shows that the rainy season in those days commenced in the month of Śrāvaṇa and came to an end in Kārttika and not in Āṣāḍha and Āśvayuja respectively as in our times.

As regards average rainfall in different parts of the country in his time, Kauṭilya makes the following statement : "in the country of Jāṇgala 16 *droṇas* ; half as much more in the moist countries; as to the countries fit for agriculture 13½ *droṇas* in the Aśmaka country ; 23 *droṇas* in Avanti; an immense quantity in Aparānta, the Himalayan region, and in the regions where water-channels are made use of in agriculture : *Ṣoḍaśa-droṇaṁ Jāṅgalānāṁ varṣa-pramāṇam = adhyardham = Ānūpānām; deśa-vāpānāṁ = ardhatrayodaś-Āśmakānāṁ; trayoviṁśatir = Avantīnām ; amitam = Aparāntānāṁ, Haimanyānāṁ kulyā-vāpānāṁ ca kālataḥ* (*Ibid*, II.24.5).

The *Kṛṣi-Parāśara* (verse 30) would have us believe that if the total rainfall of the world be divided into twenty parts, ten parts fall on oceans, six on mountains and four on land.

To sum up, although a large number of texts dealing with ancient Indian meteorology have perished, what remains bears

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eloquent testimony to the great success achieved by our ancestors in this field of study. It is indeed curious to note that many maxims and proverbs current amongst the agriculturists at present have their roots in the observations made by Indians millennia ago. It is left to those well-versed in modern meteorological- techniques to tell us how far the above-mentioned observations are correct.

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APPENDIX IV

DAKĀRGALA OR THE ART OF EXPLORING UNDERGROUND WATER-SPRINGS

The history of the art of exploring underground currents of water in India goes back to a hoary antiquity. It appears to have reached a fairly developed stage as early as the sixth century B.C. For in the *Vaṇṇupatha Jātaka*[1] we find the following story :—Once the Bodhisattva, born as a merchant, set out on a merchantile adventure. While passing through a wilderness, he lost his wood and water. In search of water he ranged to and fro, while it was still early and cool until he came across a clump of *kuśa* grass. 'This grass', thought he, 'can only have grown up here, thanks to the presence of water underneath'. He dug out a hole and up rose the water in the hole till it was as high as a palm tree. With due allowance for the obvious exaggeration, it indicates that one of the modes of ascertaining the presence of water-springs underneath was to make a minute observation of the growth of vegetation. Unfortunately no treatise of such an early date affording a detailed discussion of this subject has come down to us.

Varāhamihira dilates on this subject in some detail in Ch. 53 of the *Bṛhatsaṁhitā*. He calls this art *dakārgala*[2] or *udakārgala*[3] which term evidently refers to the determination of the subsoil water (*udaka*, *daka*) with the help of a wooden stick (*argala*), an art still practised in some parts of the country. He

1. *Jātaka* (Fausboll's ed.), Vol. I, No. 2.

2. LIII.1, 99. *Dagārgala* in a variant, Halāyudha gives *daka* as one of the words denoting water :—*Proktaṁ prājñair=bhuvanam=amṛtaṁ jīvanīyaṁ dakaṁ ca*. For the use of *daka* in the sense of water, cf. *Divyāvadāna* VIII. 262 f. (*daka-rākṣasa*) ; *Suśruta*, I. 26. 8; II. 7; III. 8; V. 2.36. Grammarians derive this form from *udaka* according to *Pṛṣodarādi*.

The word *argala* means a wooden belt, pin, bar, bolt, latch, etc. Vide V. S. Apte's *Students' Sanskrit—English Dictionary*, s. v. *argala*. Monnier-Williams takes *dagārgala* to mean 'water-key', 'examining the soil in searching for wells or rules for doing so'. Vide his *Sanskrit-English Dictionary*, s. v. *dagārgala*. But it is more appropriate to take it in the sense of searching water (*daka*) by means of a wooden stick (*argala*).

3. CVI. 7.

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was, however, not the first to dwell on this topic. As we have seen above,[1] he had access to the writings of Sārasvata and Manu dealing with this subject. These works were also available to Bhaṭṭotpala. However, as these treatises are no more extant and as this topic is not known to have been dealt with in any other ancient work also, the *Bṛhatsaṁhitā* chapter under review forms the only source of our information about the state of hydrological knowledge in ancient India. This chapter appears to have been considered unique in the whole range of Sanskrit literature, and as such it was studied as an independent text as is clear from the fact that independent manuscripts containing only this chapter (called *Jalārgala-śāstra* and *Dṛgargala*, an error for *Dakārgala* or *Dagārgala*) are reported to have been discovered.[2] Even in our own times this chapter has been independently published and has been widely popular with architects having some attachment with things ancient. Some architects, who happen to be my personal friends, tell me that their experience has demonstrated the correctness of many of the details and general principles laid down by Varāhamihira. A brief analysis of its contents is given in the lines that follow.

Means of Ascertaining Water-Veins (*śirā-nimittāni*)—It was recognised that though all the water falling from heaven is originally of the same colour and taste, it becomes different in these respects on account of the difference of the soil (2).[3] Subsoil water-veins, some running higher and others deeper, are compared to the veins in the human body (1) These veins were variously named; eight veins in the different directions were known after the regents of the regions, the ninth in the centre being called Mahāśirā (great vein). Other veins issuing from the above[4] bore different designations (3-4), the

1. *Supra*, pp. 443, 453.
2. See *supra*, pp. 28-29.
3. Figures in brackets refer to the serial number of verses of Ch. 53.
4. Cf. *Suśruta*, I. 45. 3-4; *Kāśyapa-saṁhitā*, Khilasthāna, p. 329, l. 15 :—*Nānā-rasatvaṁ bhajate toyam samprāpya bhūtalam.*

Kern's translation (*JRAS*, 1873, p. 300), viz. 'There are hundreds of others, that issue from different quarters', does not appear to be quite correct. *Etābhyaḥ* should be taken to refer to the nine veins mentioned above.

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one called Kumuda (a vein 2 cubits to the north-west of a Bignonia in a dreary region) being mentioned by name (23). The veins running from the infernal regions and in the four quarters were regarded as auspicious and those issuing from intermediate points evil (5). The presence of water was ascertained mainly through its vegetable accessories, e. g., presence of a certain tree in a waterless tract, sometimes accompanied by an ant-hill[1] or a snake's abode[2]; characteristics of an aquatic vegetation in a waterless region (47), a plot overgrown with grass in a grassless plain or a grassless plot in the midst of a soil abounding with grass (52), a thorny tree in the midst of thornless ones or a thornless tree in the midst of thorny ones (53), one of the branches of a tree being bent or faded (55), a tree showing unnatural symptoms in its fruits and blossoms[3] (56), two or more trees growing conjointly (72, 74, 75, 76, 78, 83, 96), so on and so forth. It is further stated that the sprouting corn perishing, growing abundantly[4] or looking pale in a single spot of a field (61), the soil sounding deep when struck by the feet (54), the ground steaming or smoking (60) or sloping downwards (93), the occurrence of a piece of unusual appearance (grass) in a ground otherwise uniform and devoid of grass, trees or shrubs (90), insects frequenting a spot without having their abode there (93), a row of anthills with one prominent above the rest and the corn in a field withering away or not growing at all (95) indicate water underneath. Bushes and trees growing low, looking smooth and having their long boughs hanging down (49,100) were also taken to indicate the presence of water underneath. We are also told that an isolated cold spot in a warm ground denotes cold water, while a solitary warm spot in a cold ground indicates warm water (94) and that a copper-coloured soil mixed with gravel yields astringent water; red-brown brackish water; pale yellow earth

1. LIII.9, 12, 14, 16, 19, 24, 25, etc.

2. 33, 35, 38, 41, 67, 68, 70.

3. E. g., *kaṇṭakārikā* without thorns and with white blossoms (57), a betelnut tree with two tops in a waterless region (58), a white blossoming *Pterospermum* or Butea (59).

4. Kern's rendering, 'Where, on a single spot of a field, the sprouting corn perishes, or looks thin and exceedingly pale...' is not correct. '*Snigdha*' is rightly taken by Utpala to refer to exceedingly good crop :— *Athavā tatr-aiva kṣetr-oddeśe snigdhaṁ sasyam=atīva bhavati.*

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is indicative of salt, and a blue soil of sweet water (104).[1] The fact that water-springs in a woody tract (*jāṅgala*) are situated at a lower level than in a watery country (*anūpa*), and in a desert even lower than in woody region is also recorded (62, 86, 89, 93). Varāhamihira describes in detail the various signs that one will come across in the course of digging a well, the quantity and the taste of water, etc., which need not detain us here.

SITUATION OF WELLS. The presence of a well in the south-east, south-west or north-west of a town or village was supposed to bring about various distresses, wells in other directions being approved (97-8).

EMBANKMENT OF A POND. The embankment (*pālī*, of a pond) extending from east to west, it is said, retains water for a long time while that from north to south does not, for the latter is often broken by billows roused by the wind. Varāhamihira advises one wishing to make such a pond to check the flow of water with strong timber or stones and the like (Utpala adds burnt bricks and large pebbles), the soil being hardened by the trampling of elephants, horses, etc. On one side, it is stated, an outlet should be made, the passage being built with stones, and a panel without aperture fixed in a frame, and covered by grit heaped against it.[1] The banks of ponds were to be shaded by trees (119).

RECIPE FOR CLEARING WATER. (121-2). A mixture of *añjana*, *mustā*, *uśīra*, *rājakośātaka*, emblic myrobalan and *kataka* nuts was used in order to impart clarity, good taste and and other qualities to water.[3]

1. Cf. *Śūśruta*, Sūtrasthāna, XLV. 5-6.
2. पाली प्रागपरायताम्बु सुचिरं धत्ते न याम्योत्तरा
कल्लोलैरवदारमेति मरुता सा प्रायशः प्रेरितैः ।
तां चेदिच्छति सारदारुभिरपां सम्पातमावारयेत्
पाषाणादिभिरेव वा प्रतिचयं क्षुण्णं द्विपाश्वादिभिः ॥
द्वारं च नैर्वाहिकमेकदेशे कार्यं शिलासञ्चितवारिमार्गम् ।
कोशस्थितं निर्विवरं कपाटं कृत्वा ततः पांशुभिरावपेत् तम् ॥
LIII. 118, 120.

3. Cf. *Suśruta*, I. 45. 17. The constellations of Hasta, Maghā, Anurādhā, Puṣya, Dhaniṣṭhā, the three Uttarās, Rohiṇi and Śatabhiṣaj are recommended for the commencement of digging a well, cf LIII. 123. At the beginning of digging, oblation was made to Varuṇa, and a plug of banyan or rotang was put into the soil at the place of the vein and honoured with flowers, perfumes and incenses, cf. LIII. 124.

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CORRECTIONS

Page	*Line*	*Read*	*For*
11	28	noon of that day	noon of day
22n.7	1	detailed	deteiled
27	2	attested	attested to
47	23	North India	North
55	26	Khaberis	Khaberos
61	6	Rhodopha	Rhoopha
64	17	Vanarāṣṭra	Venarāṣṭra
67	18	east	eat
71	22	Przyluski	Pryzluski
76	34	*deśe*	*deaś*
82	28	division	devision
101	5 &n. 1	Bagchi	Baghchi
107	21	*janapada*	*jauapada*
110	19-20	identified	indentified
113	1 & 11	mentions & Sairindhra	mettions & Sairindharā
119	18	Kauśika	Kanśika
121n. 2	6	flag was raised	flag raised
121 n. 3	13	चाङ्कुलै-	चाङ्कलै-
122 n. 2	3	किङ्किणी-	किंकणी-
123n. 1	16	fear	feat
129n. 10	7	attest	attest to
135n. 1	1	आब्रह्म-	आब्रह्मम-
143	7 & 11	seven-tongued & two-armed	seventongued & twoarmed
146	6	pertaining	partaining
150	31	Kumāragupta I	Skandagupta
155n. 4	1	Utpala	Utapala
172n. 4	1	*śuddha*	*śuddhu*
177n. 1	3	*-vīryā & lakṣmaṇā*	*-vīyā & lakśmaṇā*
177n. 2	10	*pūrvasyāṁ*	*pūvasyāṁ*
178n. 2	1	द्विजान्	द्विजान
188n. 2	2	-च्चाटन-	-त्पादन-
193	26	similar is	similar

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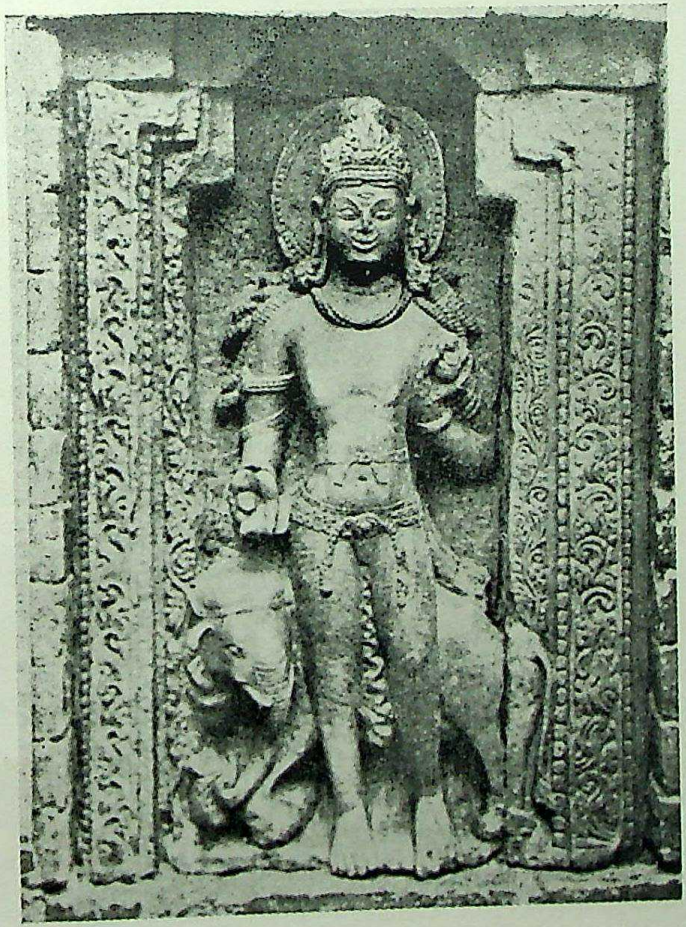

Fig. 1. Indra, Paharpur

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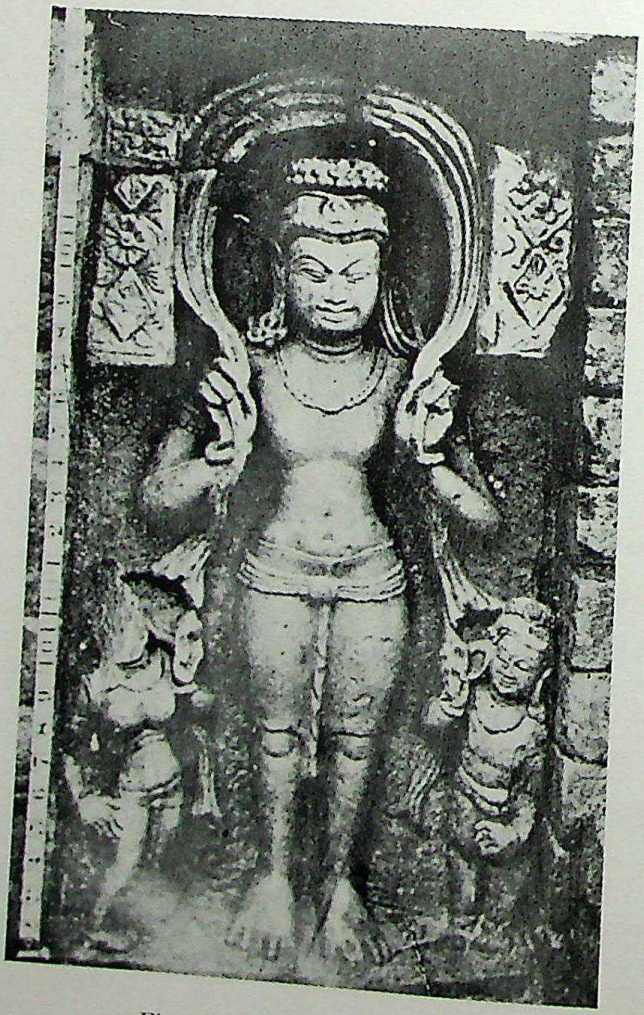

Fig. 2. Varuṇa, Paharpur

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Fig. 3. Viṣṇu, Mathura

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Fig. 4. Ardhanārīśvara bust, Mathura

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Fig. 5. Yama, Brahmeśvara temple, Bhuvaneśvara

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Fig. 6. Kubera, Bharhut

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Fig. 7. Baladeva, Provincial Museum, Lucknow

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Fig. 6. Kubera, Bharhut

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Fig. 7. Baladeva, Provincial Museum, Lucknow

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Fig. 8. Baladeva, Paharpur

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Fig. 9. Skanda, Bharat Kala Bhavan, Varanasi

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Fig. 10. Ekānaṁśā panel, Provincial Museum, Lucknow

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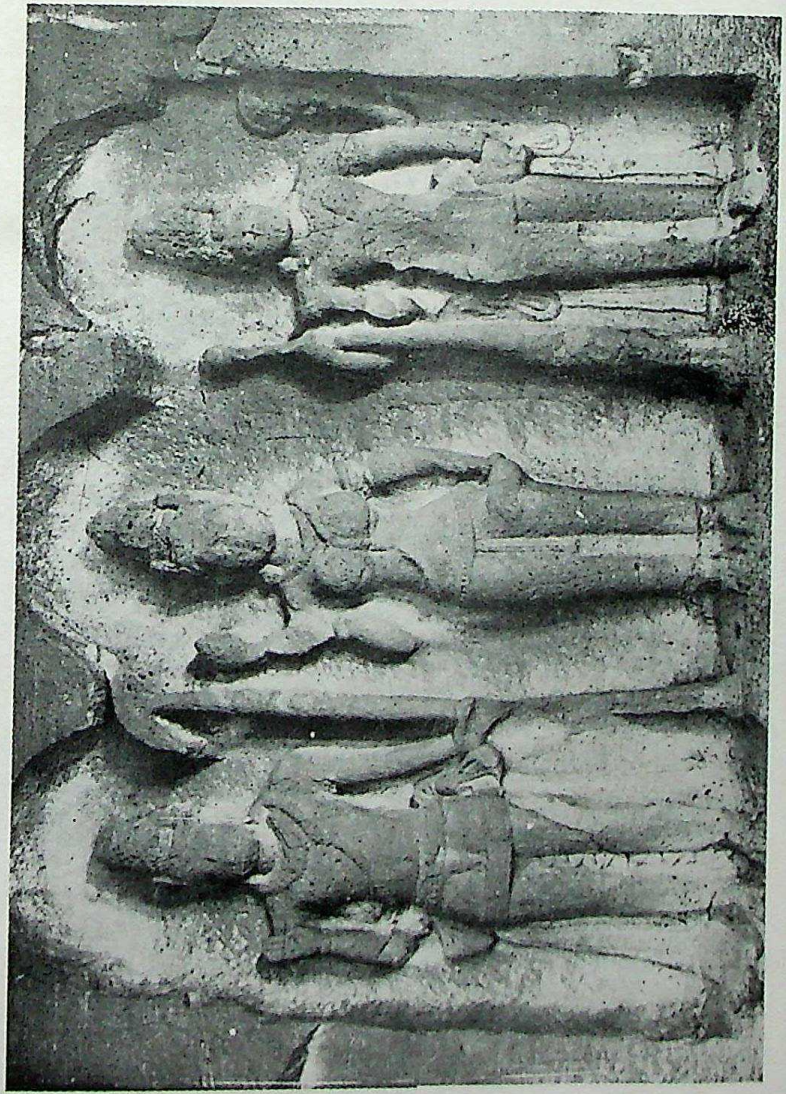

Fig. 10A. Ekānaṁśā panel, Ellora

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Fig. 11. Male figure wearing *ekāvalī* and *hāraphalaka*, Ajanta

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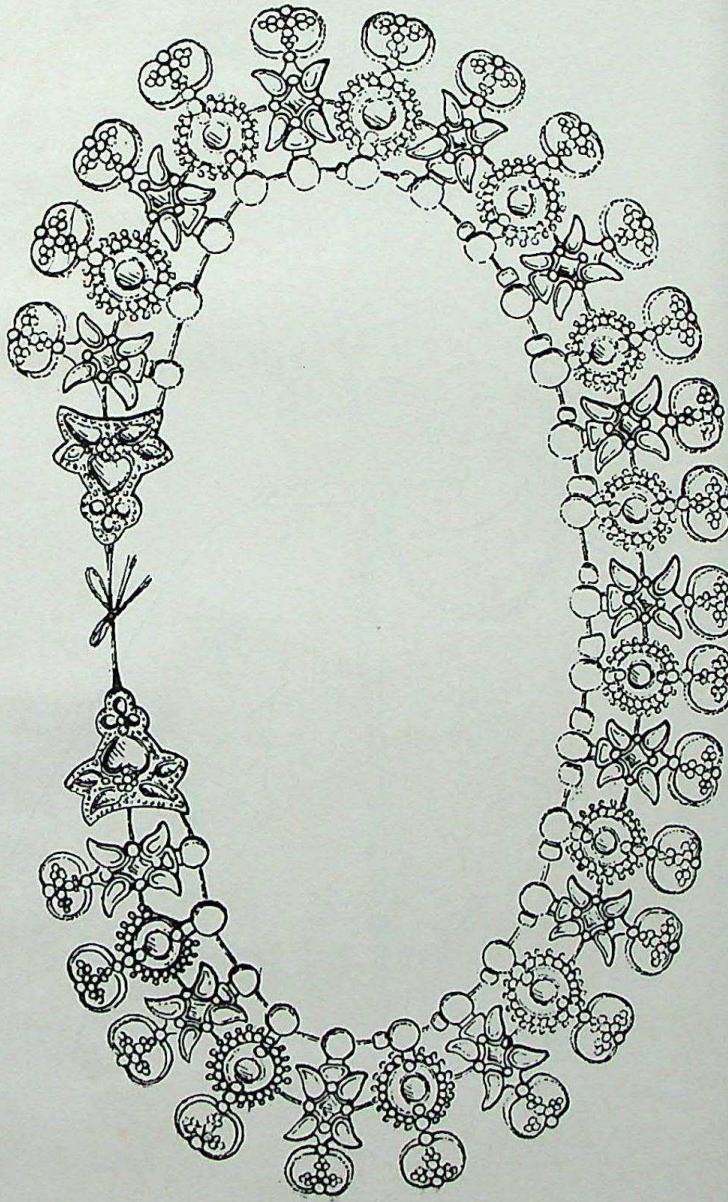

Fig. 12. *Nakṣatramālā* (of gold), Taxila

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Fig. 13. Bodhisattva Padmapāṇi wearing *yaṣṭi*, Ajanta

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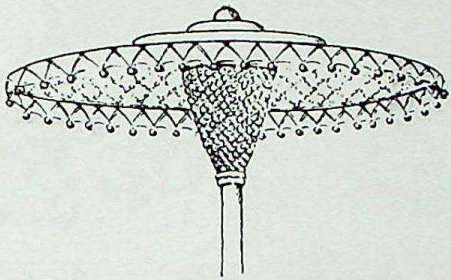

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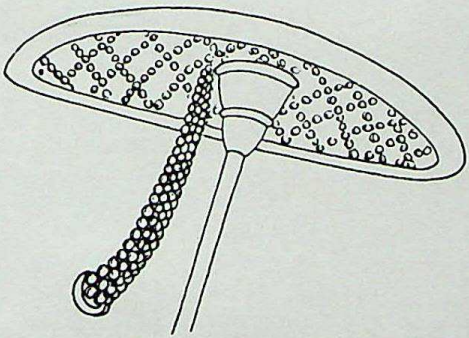

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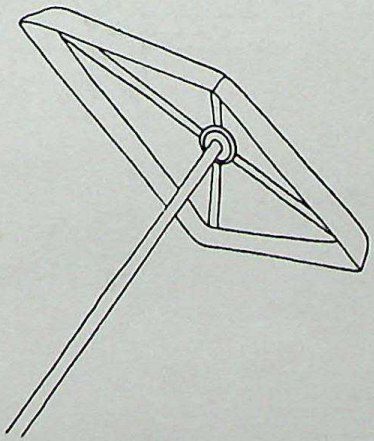

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UMBRELLAS

Figs. 14—14-A. Royal Umbrellas, Ajanta
Fig. 15. Square Umbrella, Ajanta

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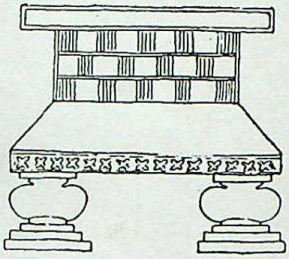

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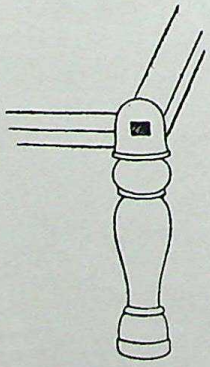

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Fig. 16. Lady holding a circular mirror, Ajanta
Fig. 17. Seat with *kumbha* legs, Amaravati
Fig. 18. Parts of the leg of a couch, Kuṣāṇa Art

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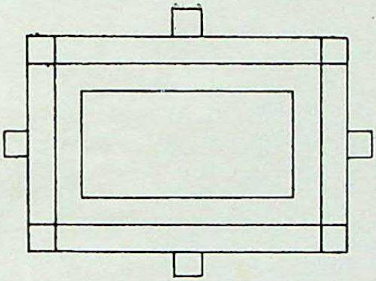

Fig. 19. Sarvatobhadra House

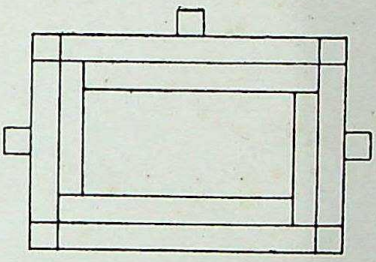

Fig. 20. Nandyāvarta house

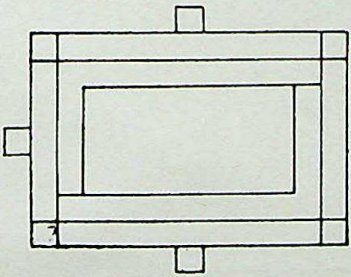

Fig. 21. Vardhamāna house

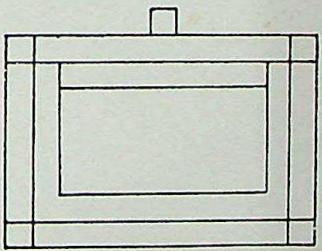

Fig. 22. Svastika house

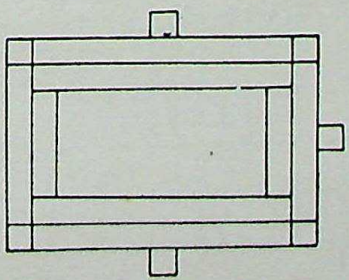

Fig. 23. Rucaka house

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E

1	2	3	4	5	6	7	8	9
32	42	3	4	5	6	7	43	10
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26	45	23	22	21	20	19	44	16
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Fig. 24. *Ekāśītipada* plan (square)

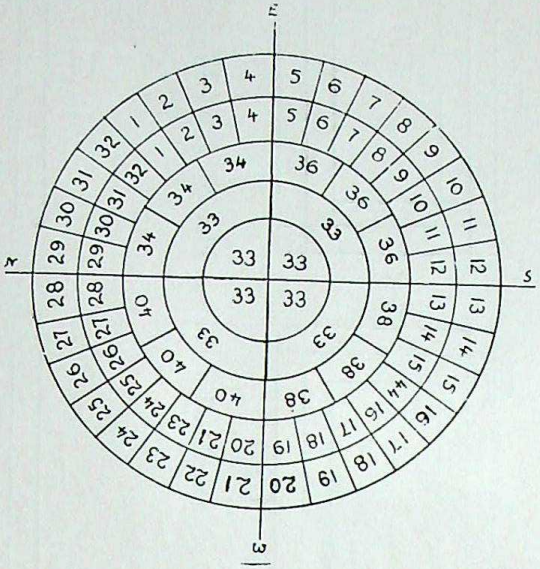

Fig. 25. *Ekāśītipada* plan (circular)

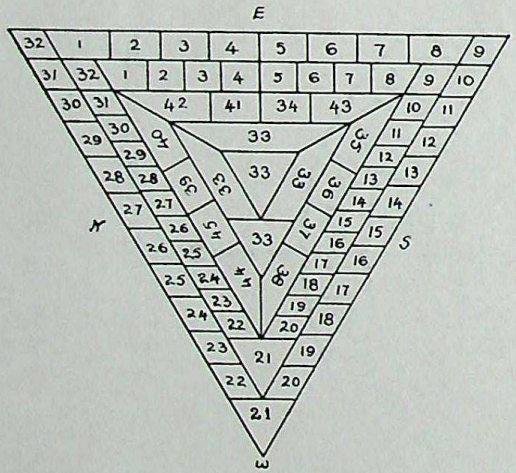

Fig. 26. *Ekāśītipada* plan (triangular)

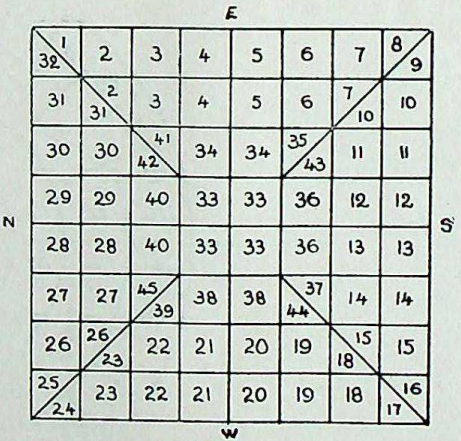

Fig. 27. *Catuḥṣaṣṭipada* plan (square)

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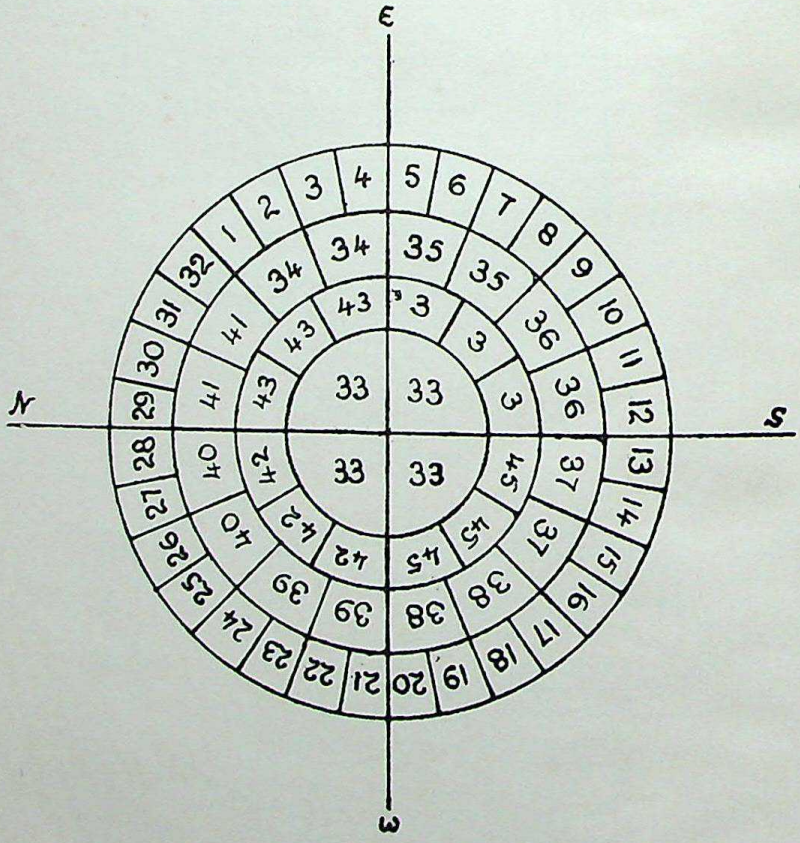

Fig. 28. *Catuḥśaṣṭipada* plan (circular)

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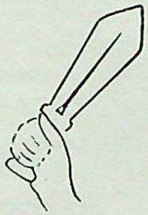

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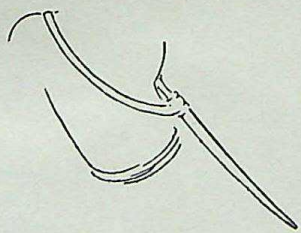

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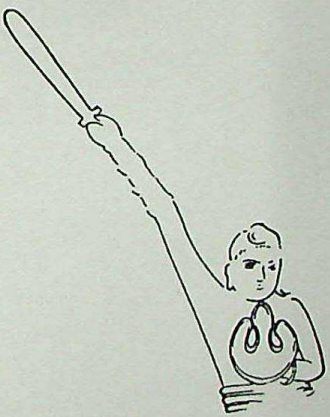

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SWORDS

Fig. 29. Lotus-petal-shaped, Amaravati
Fig. 30. Bamboo-leaf-shaped, Amaravati
Fig. 31. Pointed (*śūlāgra*), Nagarjunakonda
Fig. 32. Rounded (*maṇḍalāgra*), Amaravati

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